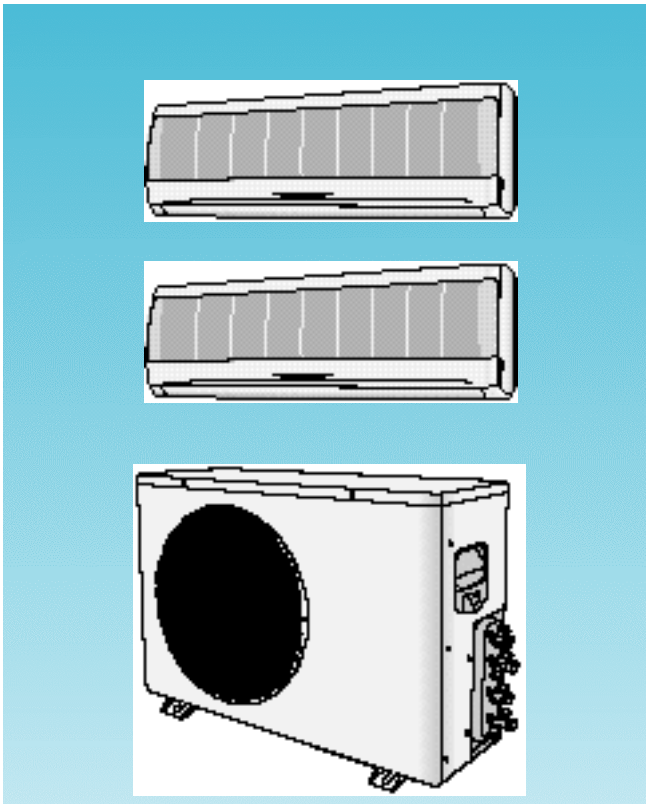
ROOM AIR CONDITIONER

INDOOR UNIT	OUTDOOR UNIT
AM18A1(B1)E09	UM18A1(B1)E2
AM18A1(B1)B09	UM18A1(B1)B2
AM19A1(B1)E07	UM19A1(B1)E2
AM19A1(B1)B12	

SERVICE *Manual*

AIR CONDITIONER



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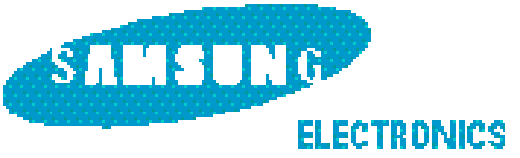

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1. Precautions

1. Warning: Prior to repair, disconnect the power cord from the circuit breaker.

2. Use proper parts: Use only exact replacement parts. (Also, we recommend replacing parts rather than repairing them.)

3. Use the proper tools: Use the proper tools and test equipment, and know how to use them. Using defective tools or test equipment may cause problems later-intermittent contact, for example.

4. Power Cord: Prior to repair, check the power cord and replace it if necessary.

5. Avoid using an extension cord, and avoid tapping into a power cord. This practice may result in malfunction or fire.

6. After completing repairs and reassembly, check the insulation resistance. Procedure: Prior to applying power, measure the resistance between the power cord and the ground terminal. The resistance must be greater than 30 megohms.

7. Make sure that the grounds are adequate.

8. Make sure that the installation conditions are satisfactory. Relocate the unit if necessary.

9. Keep children away from the unit while it is being repaired.

10. Be sure to clean the unit and its surrounding area.

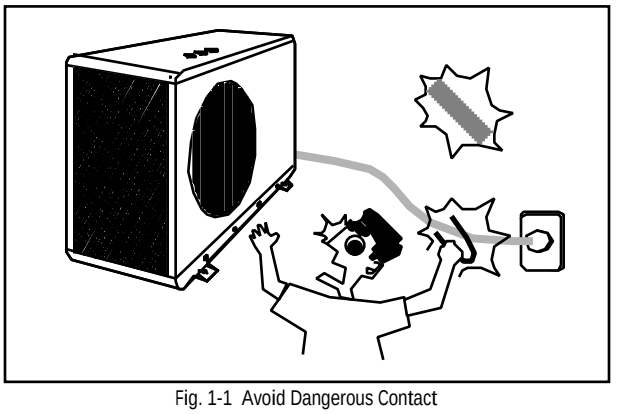

Fig. 1-1 Avoid Dangerous Contact

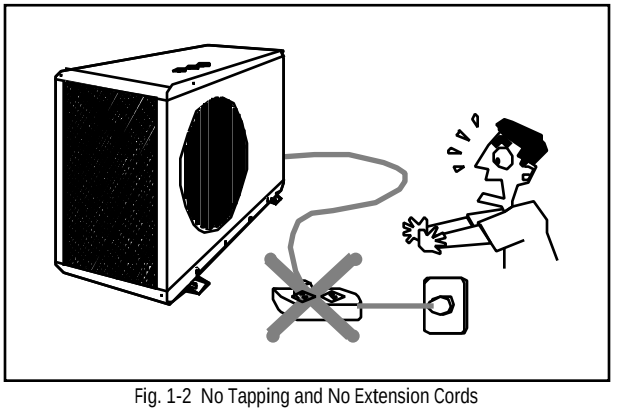

Fig. 1-2 No Tapping and No Extension Cords

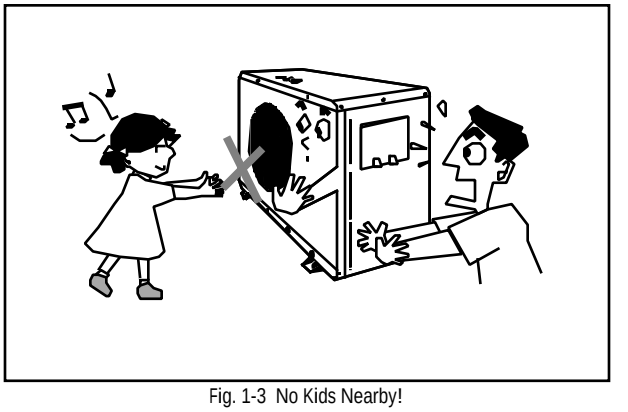

Fig. 1-3 No Kids Nearby!

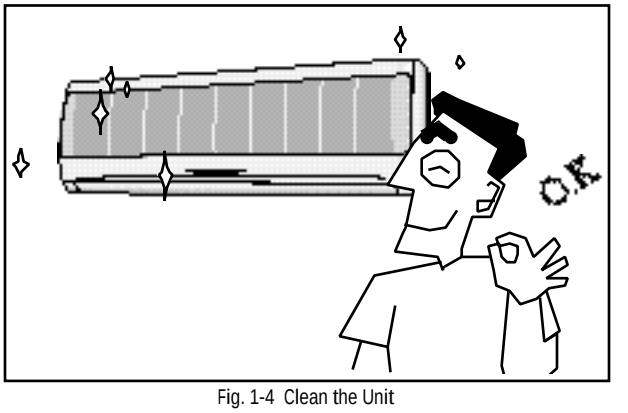

Fig. 1-4 Clean the Unit

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2. Product Specifications

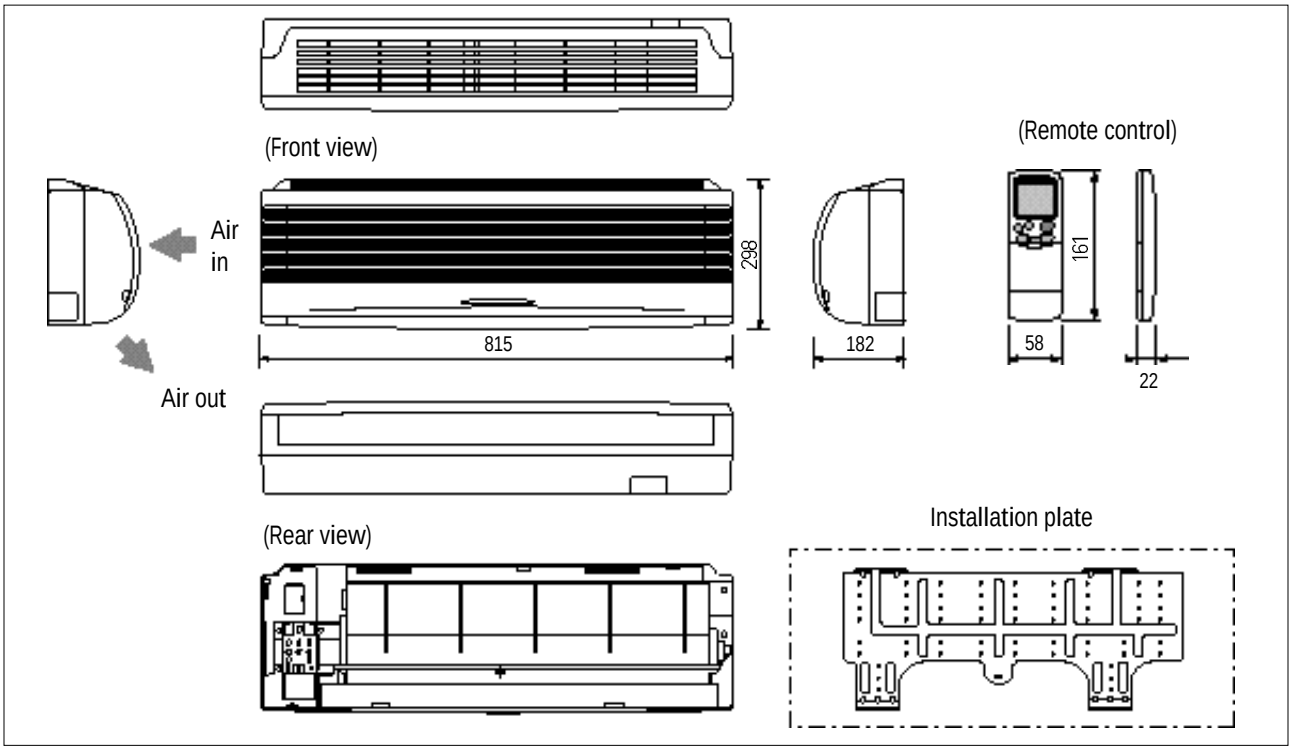
2-1 Table

Item				Model	AM18A1(B1)E2		AM18A1(B1)B2		AM19A1(B1)E2		
					INDOOR UNIT	OUTDOOR UNIT	INDOOR UNIT	OUTDOOR UNIT	INDOOR UNIT		OUTDOOR UNIT
					AM18A1(B1)E09	UM18A1(B1)E2	AM18A1(B1)B09	UM18A1(B1)B2	AM19A1(B1)E07	AM19A1(B1)E12	UM19A1(B1)E2
Type				-	Wall-Mounting Multi Split				Wall-Mounting Multi Split		
Perfor-mance	Cooling			BTU/h	9,000	18,000(9,000x2)	9,000	18,000(9,000x2)	7,000	12,000	19,000 (7,000+12,000)
	Dehumiditying			l/h	1.6	-	1.6	-	1.2	1.9	-
	Air volume	Cooling		m^3/min	7.0	-	7.0	-	6.0	8.3	-
	Noise	Cooling		dB	35	54	35	54	33	38	54
	Power			V-Hz	1-220-240V~, 50Hz		1-220V~, 60Hz		1-220V~, 50Hz		
Power	Power consumption	Cooling		W	870	1,740(870x2)	860x2	1,720(860x2)	720	1,230	1,820
	Operating current	Cooling		A	3.7	7.4(3.7x2)	4.0	8.0(4.0x2)	3.1	5.3	8.0
	Power factor	Cooling		%	97.9		97.7		96.0	96.0	94.0
	Starting current			A	30				30		
	Power cord(Option)				-	HO7RNF 2.5	-	H07RNF2.5	-	-	H07RNF2.5
					HO5RNF (5G 1mm²)		HO5RNF (5G 1mm²)		H05RNF (5G 1mm²)		
	Fuse capacity			A	3.15	-	3.15	-	3.15	3.15	3.15 / 5
Size	Outer dimension	W x H x D		mm	815x298x182	787x620x320	815x298x182	787x620x320	815x298x182	815x298x182	787x620x320
				inch	32.08x11.73x7.17	30.98x24.41x12.6	32.08x11.73x7.17	30.98x24.41x12.6	32.08x11.73x7.17	32.08x11.73x7.17	30.98x24.41x12.6
	Weight			kg	9.6	53	9.6	53	9.6	9.6	53
	Refrigerant pipe	Liquid		OD(mm)xL(m)	ø6.35 x 5		ø6.35 x 5		ø6.35x5	ø6.35x5	-
		GAS			ø9.52x5		ø9.52 x 5		ø9.52x5	ø12.7x5	-
	Drain hose			ID(mm) x L(m)	ø17 x 2,000				ø17x2,000		
	Comp-ressor	Type			-	Rotary	-	Rotary	Rotary	Rotary	Rotary
		Model name			-	44B092JW1E6	-	44B092IW1E5	44A070JW1E1	48A124JV1E5	44A070JW1E1 + 48A124JV1E5
		Capacitor			-	30µF x 420VAC	-	20µF x 450VAC	25µF x 450VAC	30µF x 420VAC	20µF x 450VAC + 30µF x 420VAC
		Motor	Tape(model)		-	-	-	-	-	-	-
			Rated output	W	-	675	-	675	675	1,210	-
	Blower	Type			Cross-fan	Propeller	Cross-fan	Propeller	Cross-fan	Cross-fan	Propeller
		Motor	Type		Resin	Still	Resin	Still	Resin	Resin	Still
			Rated output	W	35	35	35	35	35	35	35
Heat exchanger					2Row 12Step	2Row 24Step	2Row 12Step	2Row 24Step	2Row 12Step	2Row 12Step	2Row 24Step
Refrigerant control unit					A,B-UNIT ; Capillary Tube				A,B-UNIT ; Capillary Tube.		
Freezer oil capacity				cc	-	280	-	280	280	360	-
Refrigerant to change (R-22)				g	-	800x2	-	790x2	700	850	700 + 850
Protection device					-	MRA12037-12007	-	MRA12032-12008	MST24AMN-12008	MRA12030-12008	-
Standard Conditions					ISO R5151 Standard		ARI Standard		ISO R5151 Standard		

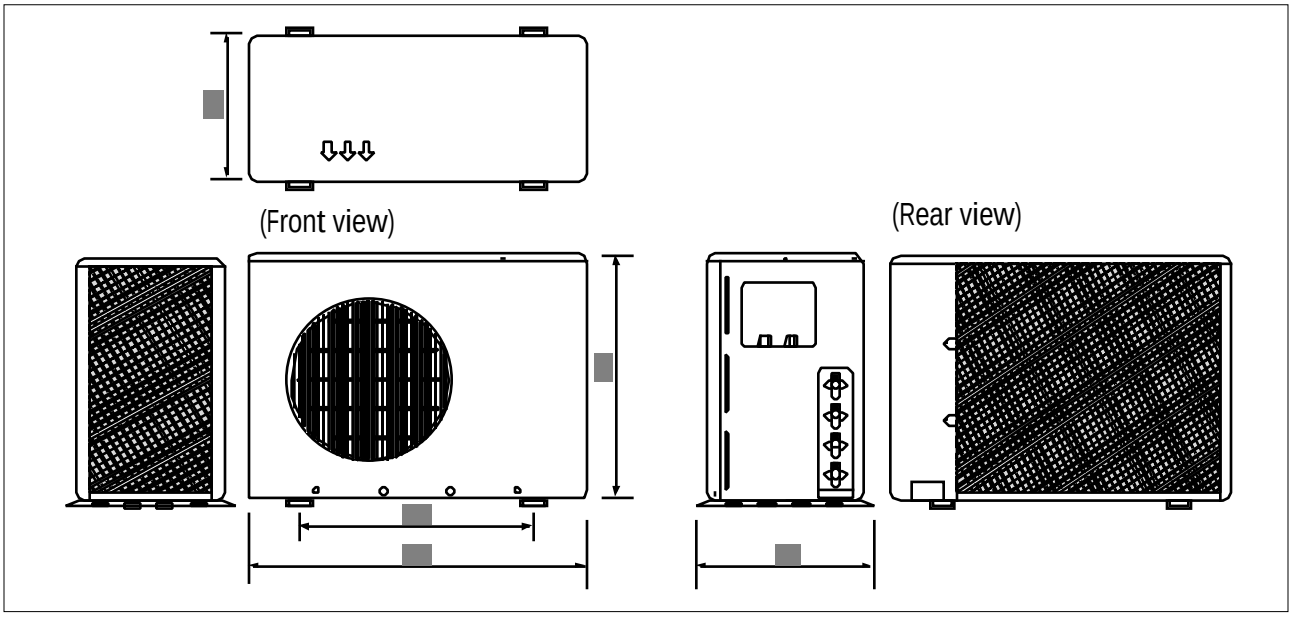
- The basic performance test is based on the piping of 5MT. (Be sure to check the installing conditions as extension of the piping may lead to performance degradetion.)

2-2 Dimensions

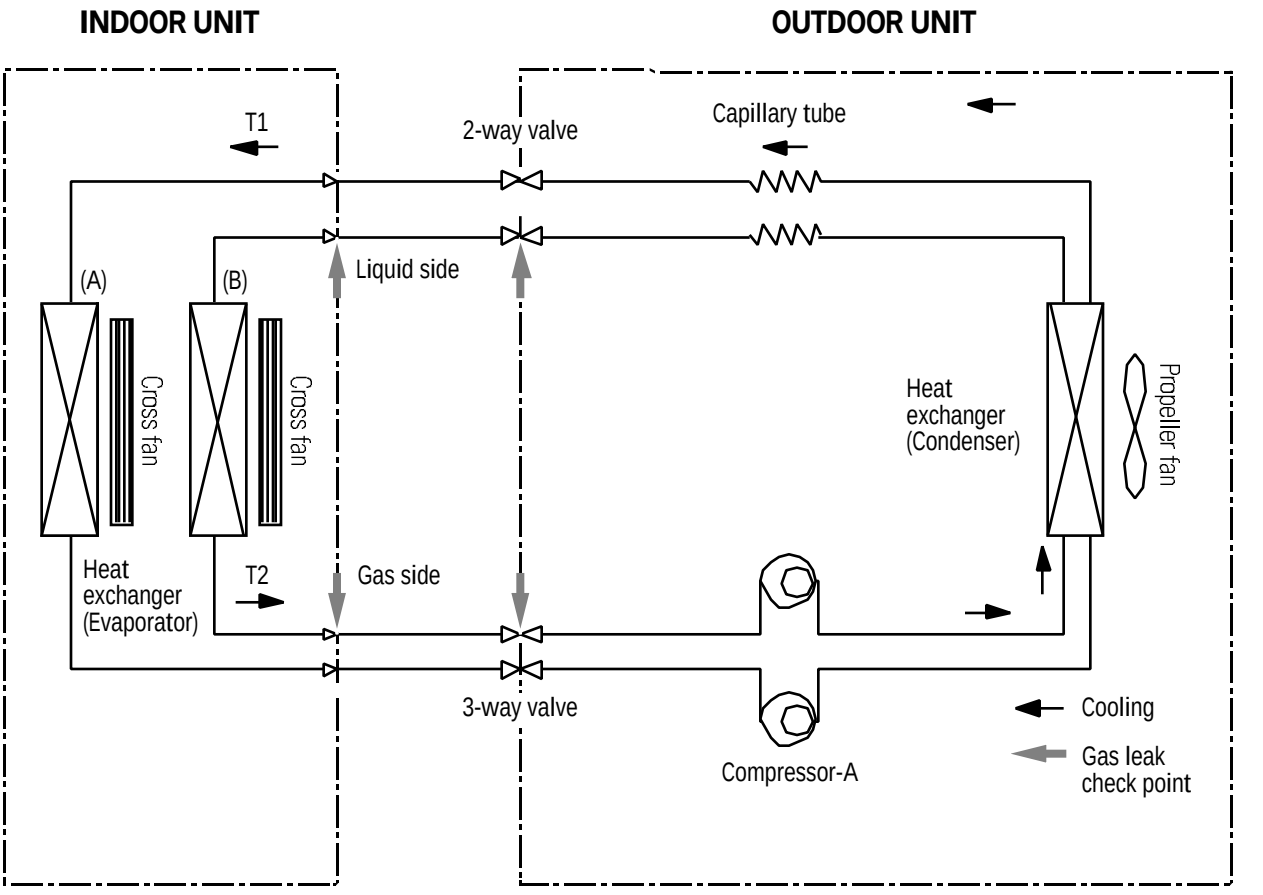
2-2-1 Indoor Unit



2-2-1 Outdoor Unit



2-3 Refrigerating Cycle Block Diagram



Refrigerating cycle temperature and pressure

Operating Condition			STD Pressure (kg/cm^2G) 3-way valve	Piping Temp.(°C)		Temp. Condition (°C)			
				T1	T2	Indoor		Outdoor	
						DB	WB	DB	WB
Cooling	A or B	Standard	5.0~5.2	11	11	27	19	35	24
		Max over load	6.0~6.3	16	15	32	23	43	26
		Low temp.	3.4~3.6	3	2	21	15	21	15
	A + B	Standard	5.0~5.2	12	10	27	19	35	24
		Max over load	6.0~6.3	16	15	32	23	43	26
		Low temp.	3.4~3.6	3	2	21	15	21	15

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3. Operating Instructions and Installation

3-1 Operating Instructions

3-1-1 Name & Function of Key in remote controller

NO		NAMED OF KEY		FUNCTION OF KEY
1				On/Off Button. Use this button to start and stop air conditioner.
2			▲ (UP)	Temp. up button. If the ▲ button is pressed once, the setting temperature is increased by 1°C
			▼ (DOWN)	Temp. down button. If the ▼ button is pressed once, the setting temperature is decreased by 1°C
3		MODE		Each time you press this button, MODE is changed in the following order.
4		TURBO		Use this button to provide heavy duty cooling & Heating for 30 minutes.
5		OFF		Set up the reserve or cancel the timer on and timer off quickly
6				Use this button for sleep operation. (The SLEEP mode can be selected at COOL and HEAT mode.)
7				Adjusts air flow vertically. Each time you press this button,
8				Each time you press this button, FAN SPEED is changed in the following order.
9	COVER	TIMER	ON TIMER	Set up the time that operation start.
10			OFF TIMER	Set up the time that operation stop.
11			SET	Use this button to reserve the timer on.
12			CANCEL	Use this button to reserve or cancel the timer on and timer off.
13			(UP)	If the button is pressed once, the time increase by one minute during the time set mode, and ten minutes during the timer set mode.
14			(DOWN)	If the button is pressed once, the time decrease by one minute during the time set mode, and ten minutes during the timer set mode.
15			TIME	Without regard to ON/OFF condition in remote controller, use this button to set current time. Adjust the current time using button. (Data can be transmitted after setting up the time)

3-1-2 Name & Function of Key in remote controller

1. AUTO MODE : In this mode, operation COOL mode is selected automatically by the room temperature of initial operation.

Operation Type	Room Temp	
Cool Operation	Tr≥ 24.5°C+ΔT	Compressor ON
	Tr≤ 24°C+ΔT	Compressor OFF

   ΔT= -1°, -2°C, 0°C+1°C+2°C
   ΔT is controlled by setting temperature up / down key of remote controller
   * FAN SPEED : AUTO

2. COOL MODE : The unit operates according to the difference between the setting and room temperature. (18°C~30°C)

3. DRY MODE : Has 3 states, each determined by room temperature.
   The unit operates in DRY mode.
   *Compressor ON / OFF Time is controlled compulsorily(can not set up the fan speed, always breeze).
   *Protective function : Low temperature release. (Prevention against freeze)

4. TURBO MODE : This mode is available in AUTO, COOL, DRY, FAN MODE.
   When this button is pressed at first, the air conditioner is operated “powerful” state for 30 minutes regardless of the set temperature, room temperature.
   When this button is pressed again, or when the operating time is 30 minutes, turbo operation mode is canceled and returned to the previous mode.
   *But, if you press the TURBO button in DRY or FAN mode that is changed with AUTO mode automatically.

5. SLEEP MODE : Sleep mode is available only in COOL mode.
   The operation will stop after 6 hours.
   *In COOL mode : The setting temperature is automatically raised by 1°C each 1hour When the temperature has been raised by total of 2°C, that temperature is maintained.

6. FAN SPEED : Manual (3 step), Auto (4 step)
   Fan speed automatically varies depending on both the difference between setting and the room temperature.

7. COMPULSORY OPERATION :
   For operating the air conditioner without the remote controller.
   *AUTO : The operating is the same function that AUTO MODE in the remote controller.

8. SWING : BLADE-H is rotated vertically by the stepping motor.

9. Quick OFF TIMER: OFF timer (quick timer) allows reservation or cancel the timer on and timer off quickly
   When OFF timer button is pressed at operating state, LCD displays the polling state sequentially.
   The LCD also displays the time remaining.

10. 24-Hour ON / OFF Real Setting Timer. : The air conditioner is turned ON at a specified time using [ON TIMER].
    OFF TIMER : The air Conditioner is turned OFF at a specified time using [OFF TIMER].
    *ON TIMER : Only timer LED lights on.
    *OFF TIMER : Both timer and operation LED lights on.
    *3 minutes delay timer.

11. SELF Diagnosis

LED DISPLAY				Check Point
operation	TIMER	FAN	Turbo	
◑	○	○	○	Interruption of electric power and Power on.
○	◑	○	○	Abnormal condition of the room sensor.
◑	◑	○	○	Abnormal condition of the indoor unit's heat exchanger sensor.
○	○	◑	○	Indoor unit fan motor lock.

◑ : LED blinking ○ : LED off

12. BUZZER SOUND : Whenever the ON / OFF button is pressed or whenever change occurs to the condition which is set up or select, the compulsory operation mode, buzzer is sounded "beep"

3-2 Outdoor unit controlling spec (Each load controlling condition)

3-2-1 Selecting Area for Installation

Select an area for installation that is suitable to the customer's needs.

3-2-1(a) Indoor Unit

1. Make sure that you install the indoor unit in an area providing good ventilation. It must not be blocked by an obstacle affecting the airflow near the air inlet and the air outlet.
2. Make sure that you install the indoor unit in an area allowing good air handling and endurance of vibration of the indoor unit.
3. Make sure that you install the indoor unit in an area where there is no source of heat or vapor nearby.
4. Make sure that you install the indoor unit in an area from which hot or cool air is spread evenly in a room.
5. Make sure that you install the indoor unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances (at least 1 meter).
6. Make sure that you install the indoor unit in an area which provides easy pipe connection with the outdoor unit, and easy drainage for condensed water.
7. Make sure that you install the indoor unit in an area which is large enough to accomodate the measurements shown in figure on the next page.

3-2-1(b) Outdoor Unit

1. Make sure that you install the outdoor unit in area not exposed to the rain or direct sun light.
   (Install a separate sunblind if exposed to direct sun light.)
2. Make sure that you install the outdoor unit in area allowing good air moment, not amplifying noise or vibration, especially to avoid disturbing neighbours.
   (Fix the unit firmly if it is mounted in a high place.)
3. Make sure that you install the outdoor unit in area providing good ventilation and which is not dusty. It must not be blocked by any obstacle affecting the airflow near the air inlet and the air outlet.
4. Make sure that you install the outdoor unit in area free from animals or plants.
5. Make sure that you install the outdoor unit in area not blocking the traffic.
6. Make sure that you install the outdoor unit in area easy to drain condensed water from the indoor unit.
7. Make sure that you install the outdoor unit in area which provides easy connection within the maximum allowable length of a coolant pipe (15 meters).
   Note
   1. Add 10 grams of refrigerant (R-22) for every 1 meter if the pipe length exceeds the standard pipe length of 5 meters.
   2. Maintain a height between the indoor and outdoor units of less than 3 meters.
8. Make sure that you install the outdoor unit in an area which is large enough to accommodate the measurements shown in figure on the next page.

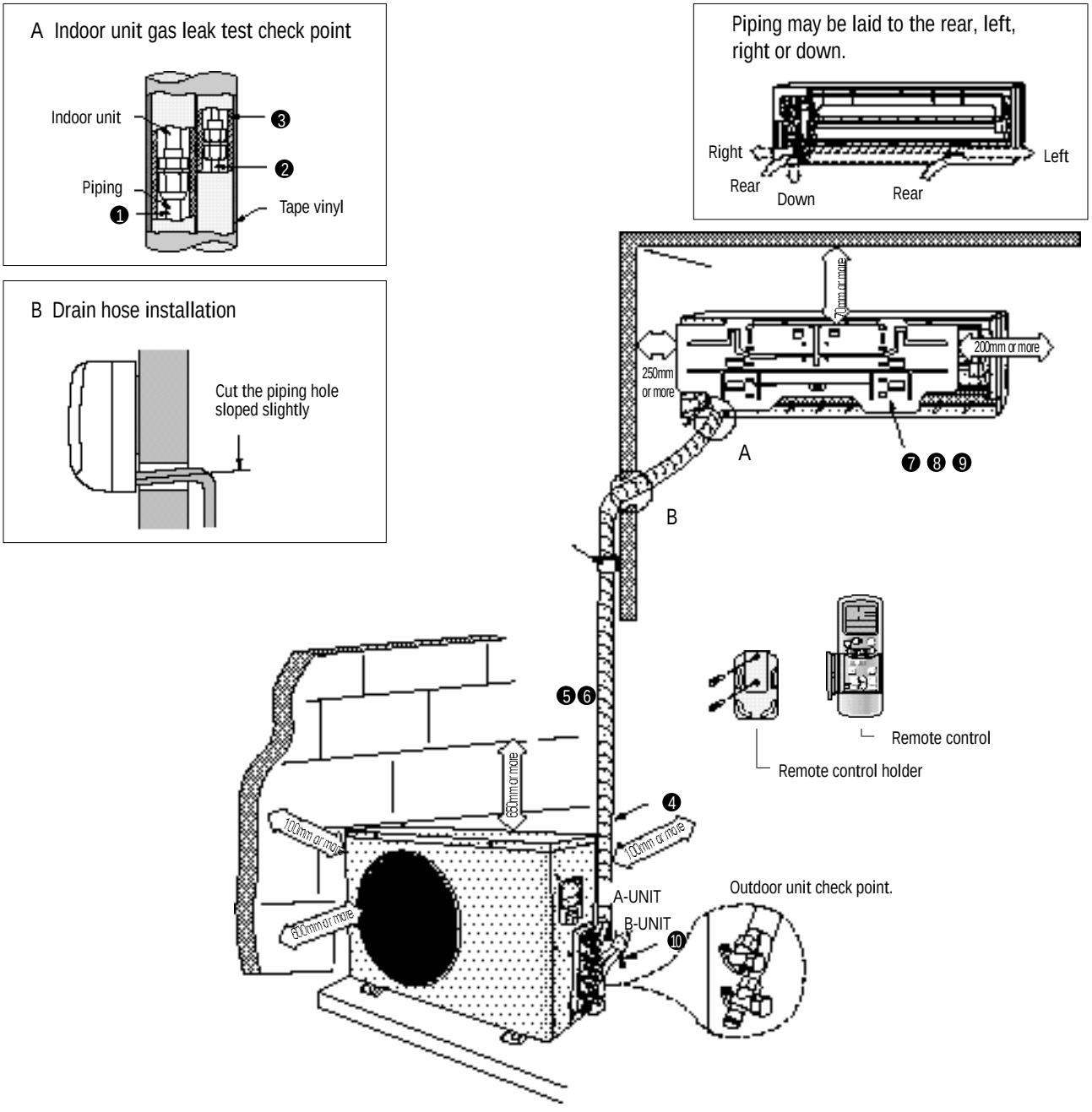
3-2-1(c) Remote Control Unit

1. Make sure that you install the remote control unit in an area free from obstacles such as curtains etc, which may block signals from the remote control unit.
2. Make sure that you install the remote control unit in an area not exposed to direct sunlight, and where there is no source of heat.
3. Make sure that you install the remote control unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances (at least 1 meter).

Caution

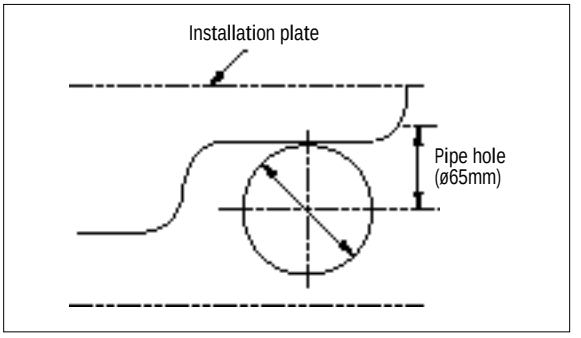
It is harmful to the air conditioner if it is used in the following environments: greasy areas (including areas near machines), salty areas such as coast areas, areas where sulfuric gas is present such as hot spring areas. Contact your dealer for advice.

3-2-2 Installation diagram of indoor unit and outdoor unit



❶	Piping (Liquid) 1/4"	❻	Clamper tube
❷	Piping (Gas) 3/8" or 1/2"	❼	Installation plate
❸	Installation tube	❽	Pipe-connection
❹	Vinyl tape	❾	Screw
❺	Putty	❿	Drain hose

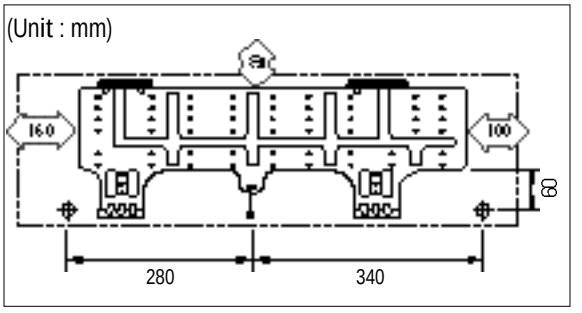
3-2-2(a) Fixing the Installation Plate



1. Determine the position of the pipe and drain hose hole using the right figure and drill the hole with an inner diameter of 65mm so that it slants slightly downwards.

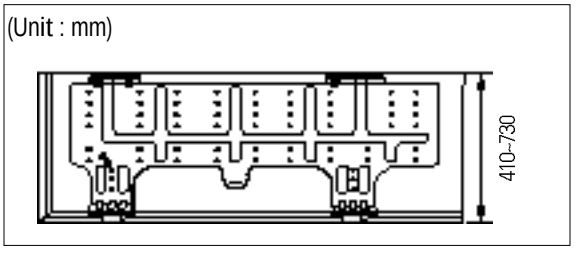
2.

If you are fixing the indoor unit to a…	**Then follow Steps…**
Wall	**3.**
Window frame	**4 to 6.**



3. Fix the installation plate to the wall in a manner appropriate to the weight of the indoor unit.

   If you are mounting the plate on a concrete wall with anchor bolts, the anchor bolts must not project by more than 20mm.

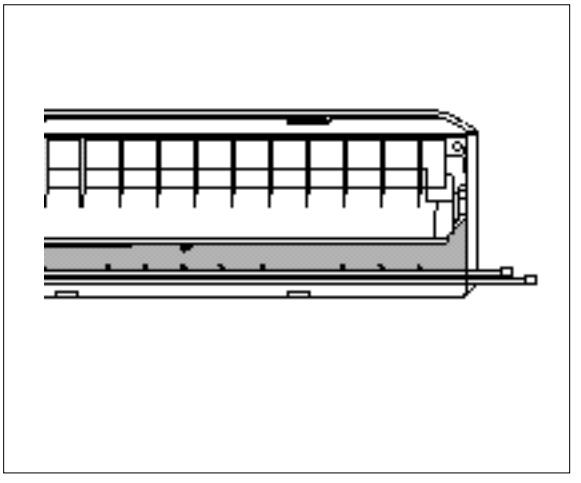


4. Determine the positions of the wooden uprights to be attached to the window frame.

5. Attach the wooden uprights to the window frame in a manner appropriate to the weight of the indoor unit.

6. Using tapped screws, attach the installation plate to the wooden uprights, as illustrated in the last figure opposite.

3-2-2(b) Purging the Unit



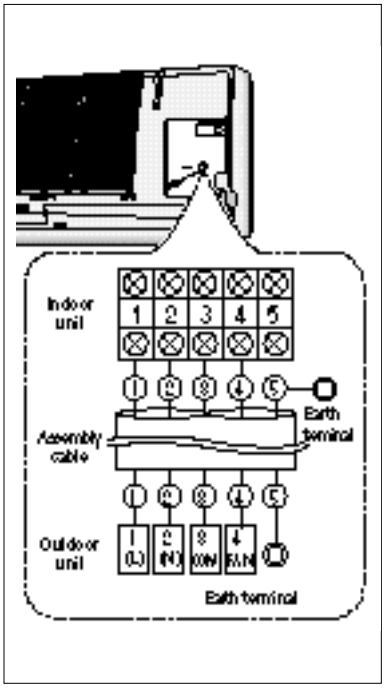
On delivery, the indoor unit is loaded with an inert gas. All this gas must therefore be purged before connecting the assembly piping. To purge the inert gas, proceed as fol - lows.

Unscrew the caps at the end of each pipe.

Result : All inert gas escapes from the indoor unit.

- **To prevent dirt or foreign objects from getting into the pipes during installation, do NOT remove the caps completely until you are ready to connect the piping.**

3-2-2(c) Connecting the Assembly Cable.

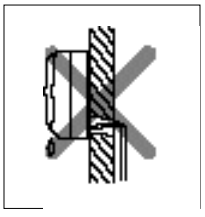


The outdoor unit is powered from the indoor unit via the assembly cable. If the outdoor unit is more than five metres away from the indoor unit, the cable must first be extended to a maximum of ten metres.

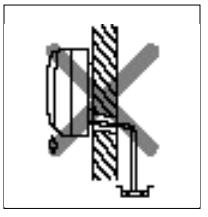
1. Extend the assembly cable if necessary.
2. Open the front grille by pulling on the tabs on the lower right and left sides of the indoor unit.
3. Remove the screw securing the connector cover.
4. Pass the assembly cable through the rear of the indoor unit and connect the assembly cable to terminals 1 to 5.
   - Each wire is labelled with the corresponding terminal number.
5. Pass the other end of the cable through the 65mm hole in the wall.
6. Replace the connector cover, carefully tightening the screw.
7. Close the front grille.
8. For further details on how to plug the other end of the assembly cable into the outdoor unit, refer to page 3-10.

3-2-2(d) Installing and Connecting the Indoor Unit Drain Hose

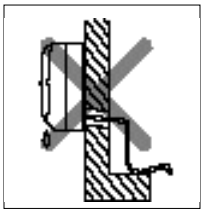
Care must be taken when installing the drain hose for the indoor unit to ensure that any condensa - tion water is correctly drained outside.l When passing the drain hose through the 65mm hole drilled in the wall, check that none of the following situations occur.



The hose must NOT slope upw ards.

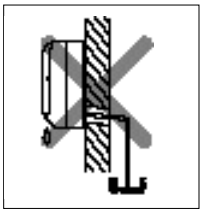


The end of the drain hose must NOT be placed in water.



Do NOT bend the hose in different directions.

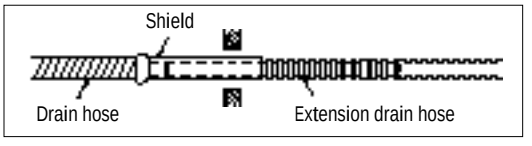
Keep a clearance of at least 5cm between the end of the hose and the ground.



Do NOT place the end of the drain hose in a hollow.

To install the drain hose, proceed as follows.

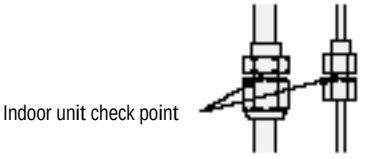
1. If necessary, connect the 2-metre extension to the drain hose.
2. If you are using the extension, insulate the inside part of the extension drain hose with a shield.
3. Pass the drain hose under the refrigerant piping, taking care to keep the drain hose tight.
4. Pass the drain hose through the hole in the wall, making sure that it is sloping downwards, as shown in the illustrations above.

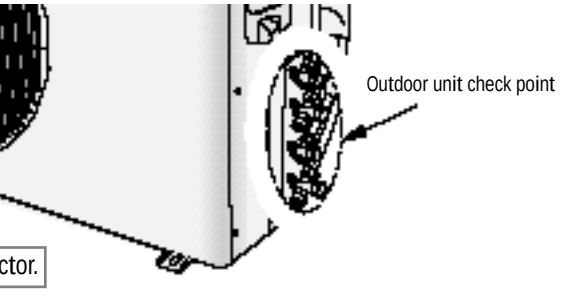


The hose will be fixed permanently into position once the whole installation has been tested for gas leaks; refer to page 16 for further details.

3-2-2(e) Outdoor unit installation

GAS LEAK TEST





Check for gas leak from the flare nut connections with leak detector.

WIRING CONNECTION

Two electric cables must be connected to the outdoor unit:

- ***The assembly cable connecting the indoor unit to the outdoor unit.***
- ***The power cable connecting the auxiliary circuit breaker to the outdoor unit.***

1 Remove the terminal board cover on the side of the outdoor unit.

2 Connect the assembly cable to terminals 1 to 5 and connect the power cable to therminals A to B.

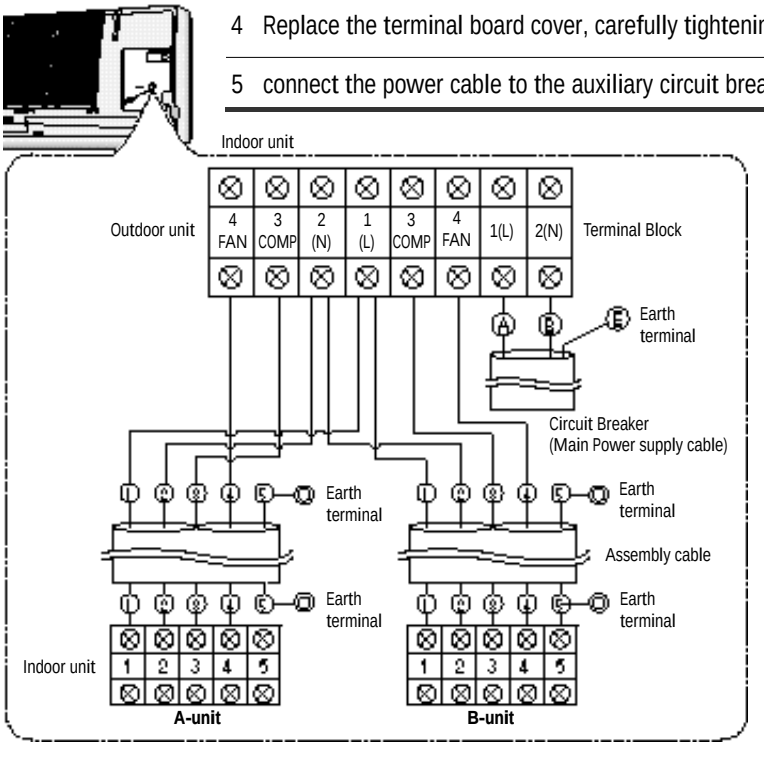
► Each wire is labelled with the corresponding terminal number.
► Ensure that the wire number of the indoor unit and the terminal number of the outdoor unit.

3 Connect the earthing wires to the earth terminals.

► Refer to the page opposite for further details on how to check that earthing is correct.

4 Replace the terminal board cover, carefully tightening the screw.

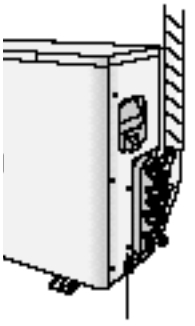
5 connect the power cable to the auxiliary circuit breaker.



Grounding

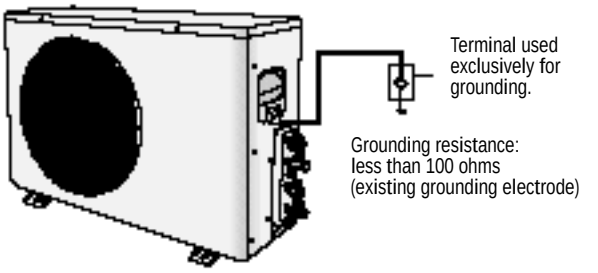
(The parts for this work are optional.)

- A grounding terminal can be found on the outdoor unit as illustrated.



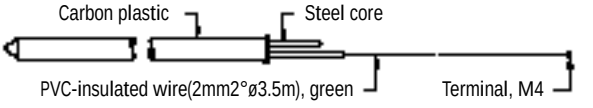
Grounding screw hole

1. When an existing grounding terminal is available.
   (Grounding wire of ®™1.6mm or larger<solid wire>or 2mm2 or larger <standard wire>)



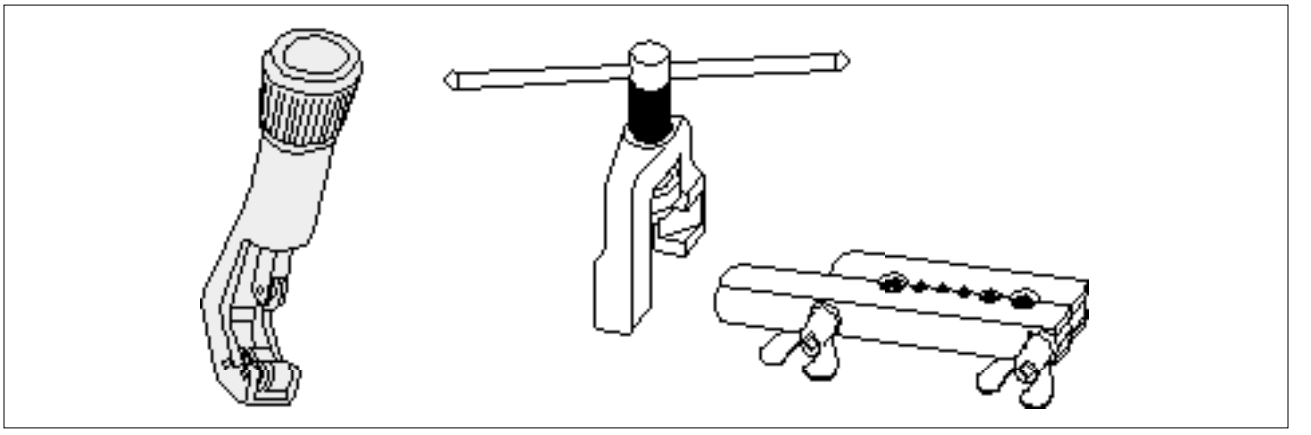
2. Use of a grounding electrode.

- Specifications of grounding electrode.



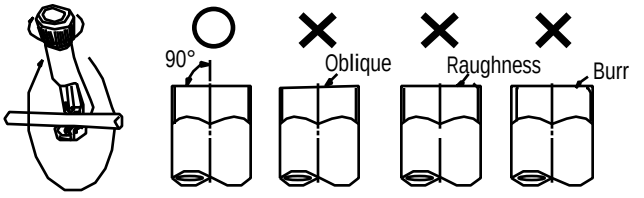
3-2-2(f) Flare Modification

• Tools used



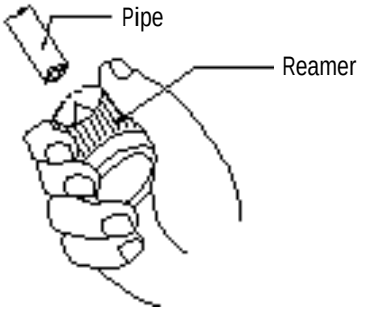
Flare modification procedure

1) Cut the pipe using a pipe cutter.

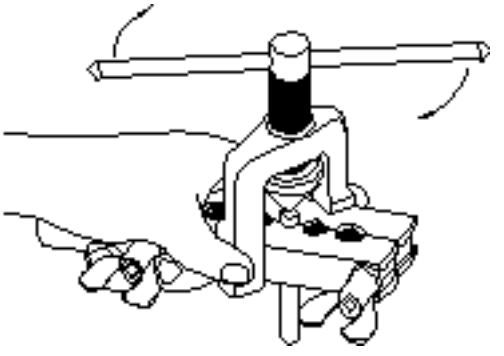


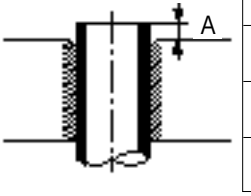
2) Remove burrs at the tip of the pipe cut.

Caution : Burrs not removed may result in leakage of gas.



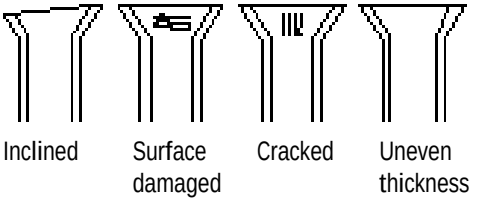
3) Insert a flare nut into the pipe and modifty flare.





Outer diameter	A(mm)
ø6.35mm	1.3
ø9.52mm	1.8
ø12.7mm	2.0

* Unproper flaring



3-2-2(g) Air-Purging

CAUTION

The air in the indoor unit and in the pipe must be purged. If air remains in the refrigeration pipes, it will affect the compressor, reduce to cooling/heating capacity and could lead to a malfuction. Refrigerant for air purging is not charged in the outdoor unit. Use Vacuum Pump as shown at the right figure. Each unit must be purged in turn.

1. Check the piping connections

2. Connect the charging hose of low pressure side of manifold gauge to the packed valve having a service port(3/8" or 1/2" Packed valve) as shown at the right figure.

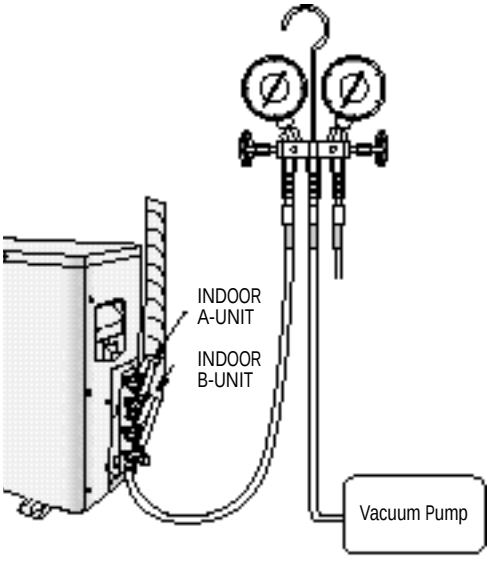
3. Open the valve of the low pressure side of manifold gauge counter-clockwise.

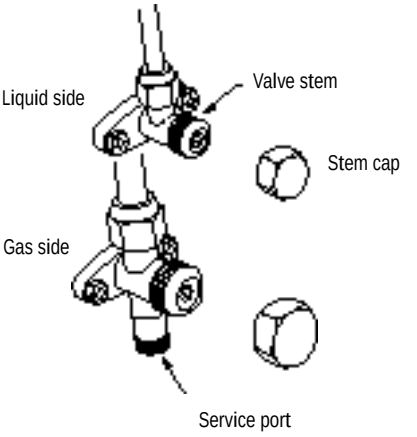
4. Purge the air from the system using vacuum pump for about 10 minutes.
   - Close the valve of the low pressure side of manifold gauge clockwise.
   - Make sure that pressure gauge show -0.1MPa (-76cmHg) after about 10minutes.
     This procedure is very important in order to avoid gas leak.
   - Turn off the vacuum pump.
   - Remove the hose of the low pressure side of manifold gauge.

5. Set valve cork of both liquid side and gas side of packed valve to the open position.

6. Mount the valve stem nuts and the service port cap to the valve, and tighten them at the torque of 18N·m with a torque wrench.

7. Check for gas leakage.
   - At this time, especially check for gas leakage from the 3-way valve's stem nuts, and from the service port cap.





3-2-2(h) Refrigerant Refill Procedure

If connecting pipe of more than 10 metres is installed, additional refrigerant should be charged by extra metre. You don't have to charge additional refrigerant up to 10 metres of connecting pipe.

1. Remove the valve stem cap and service port of 3-way valve.
2. Connect the charging hose of low pressure side of Manifold gauge to the packed valve having a charging port(3/8" Packed valve) as shown at the right figure.
3. Operate the unit at the cooling mode.
4. Slowly open the valve of the low pressure side of Manifold gauge counterclockwise until the low pressure of manifold gauge indicates 4.8 to 5.5 kg/cm^2 at the high cool operation(1-unit operation) and the standard temperature.(for details, see the page 3-14)
   It is recommend that regrigerant should be slowly put in. If the refrigerant is put in too quickly, compressor will be damaged.
5. Stop operation of the air conditioner.
6. Disconnect the charge hose of manifold gauge.
7. Close the cap of each valve.

• Formulas

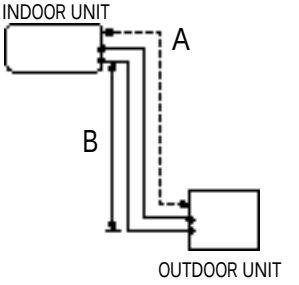
A-unit : 10g x (La - 5) / m
B-unit : 10g x (Lb - 5) / m
(L_a : the length of A-unit's pipe)
(L_b : the length of B-unit's pipe)

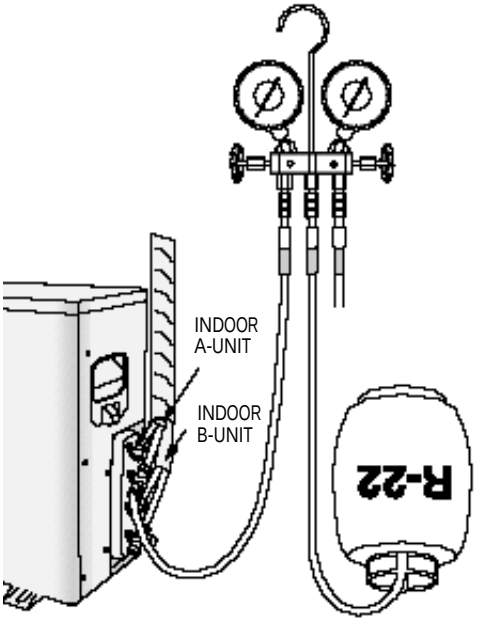
• Piping length and the height

	Pipe Size		Max.piping length A	Max height B
	LIQUID	GAS		
AM18A1(B1)E09 AM18A1(B1)B09 AM19A1(B1)E07	1/4"	3/8"	15m	3m
AM19A1(B1)E12	1/4"	1/2"	15m	3m

Additional refrigerant change (R22,g)

• When length of the pipe is over 5u by the unit, you should charge the refrigerant Formulas
A-UNIT : 10gx(L_a-10)/m
B-UNIT : 10gx(L_b-10)/m
(L_a:the length of A-unit's pipe L_b:the length of B-unit's pipe)





3-3-2(i) Flare unt fixing torque

Outter diameter	Torque (kg-cm)	
	Fixing Torque	Final Torque
ø 6.35(Liquid Side)	160	200
ø 9.52(Gas Side)	300	350
ø 12.7(Gas Side)	500	550

3-2-2(j) "Pump down" Procedure

1. Confirm that both the 2-way and 3-way valves are set to the open position.
   (1) Remove the valve stem caps.
   (2) Be sure to use a hexagonal wrench to operate the Gas side valve stems.

2. Operate the unit for 10 to 15 minutes.

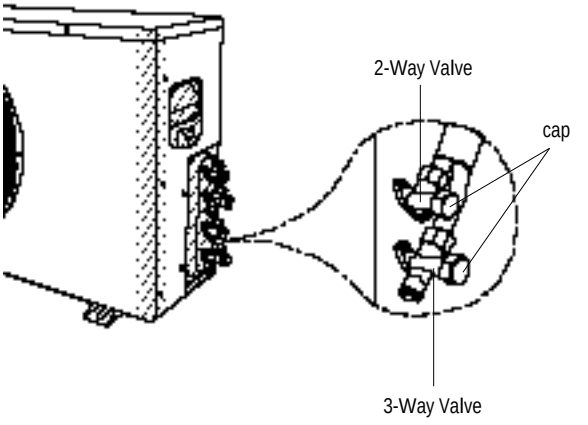
3. Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.
   (1) Connect the charge hose with the push pin to the service port.

4. Air purging of the charge hose.
   (1) Open the low-pressure valve on the charge set slightly to air purge from the charge hose.

5. Set the liquid side 2-way valve to the closed position.

6. Operate the air conditioner at the cooling cycle and stop operation immediately after setting the 3-way valve to the closed position when the gauge indicates 0 kg/cm^{2}G.
   If the unit can not be operated at the Cooling Mode(weather is rather cool), operate the unit at the Trubo Mode. So that the unit can be operated.

7. Disconnect the charge set, and mount the both 3-way valve's stem nuts and the service port cap.



Relocation of the air conditioner

- Refer to this procedure when the unit is relocated.

1. Carry out the pump down procedure (refer to the details of 'pump down').
2. Remove the power cord.
3. Disconnect the assembly cable from the indoor and outdoor units.
4. Remove the flare nut connecting the indoor unit and the pipe.
   At this time, cover the pipe of the indoor unit and the other pipe using a cap or vinyl plug to avoid foreign material entering.
5. Disconnect the pipe connected to the outdoor unit.
   At this time, cover the valve of the outdoor unit and the other pipe using a cap or vinyl plug to avoid foreign material entering.
6. Make sure you do not bend the connection pipes in the middle and store together with the cables.
7. Move the indoor and outdoor units to a new locatioon.
8. Remove the mounting plate for the indoor unit and move it to a new location.

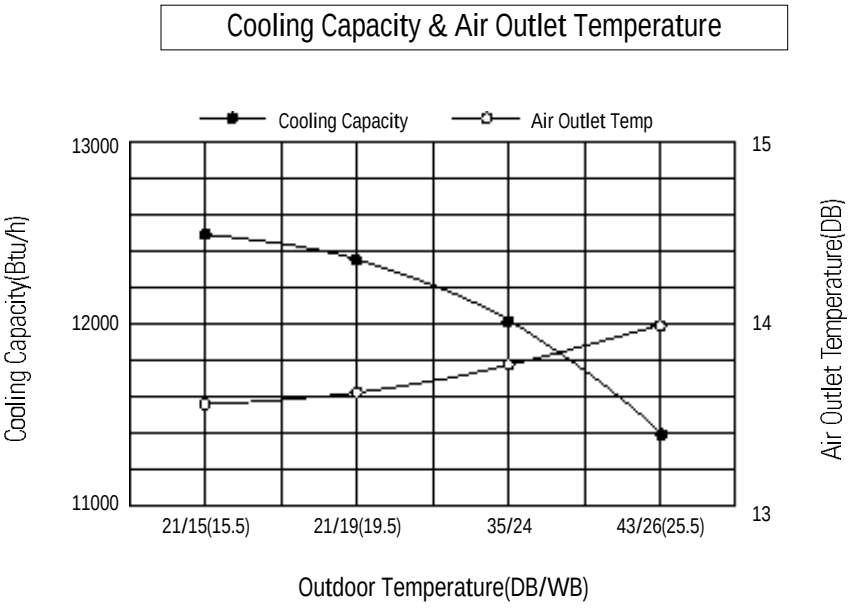
3-3-3 Technical Document

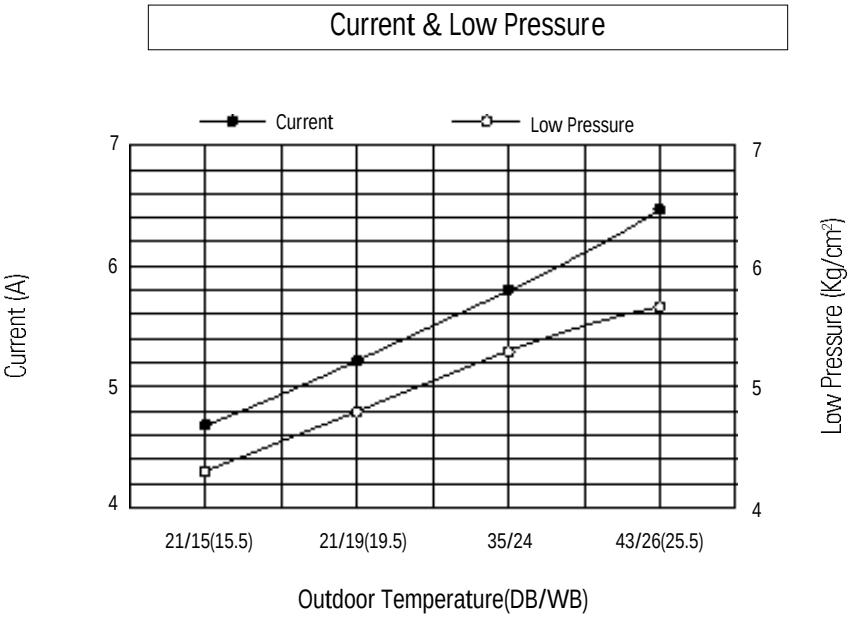
3-3-3(a) AM19A1(B1)E12

• Cooling Characteristics - Outdoor Temperature

Test Condition Indoor Unit (DB / WB) : 27 / 19
Voltage / Frequency : 240V / 50Hz

• In case of 2Unit, Capacity & Current multiplied by 2

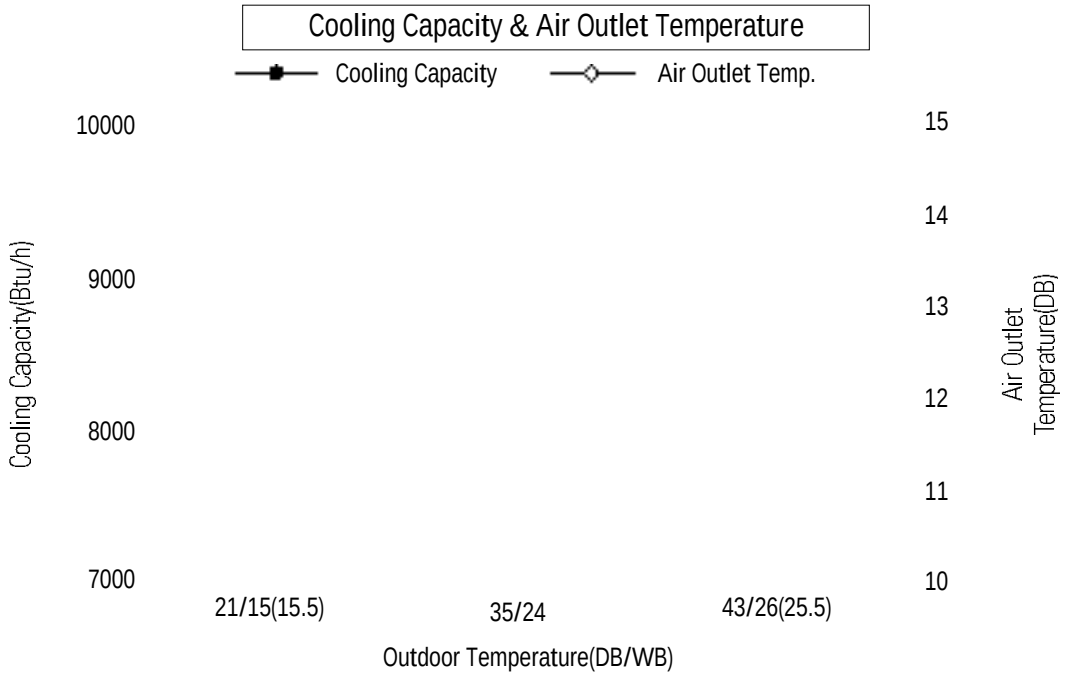


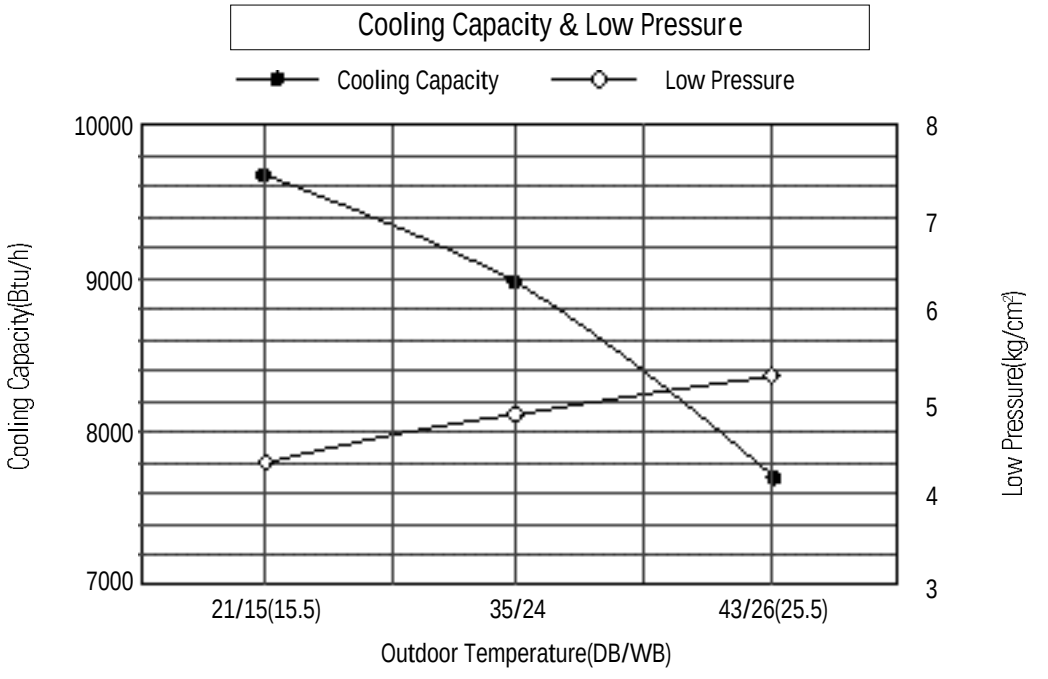


3-3-3(b) AM18A1(B1)E09 / AM18A1(B1)B09 / AM19A1(B1)E07

- Cooling Characteristics - Outdoor Temperature

Test Condition Indoor Unit(DB / WB) : AM18A1(B1)E09 / AM19A1(B1)E07 : 27 / 19, AM18A1(B1)B09 : 27 / 19.5
Voltage / Frequency : AM18A1(B1)E2 / AM19A1(B1)E2 : 240V / 50Hz, AM18A1(B1)B2 : 220V / 60Hz



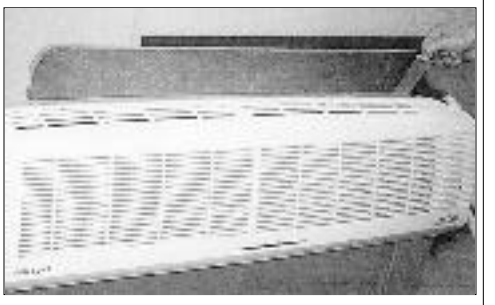
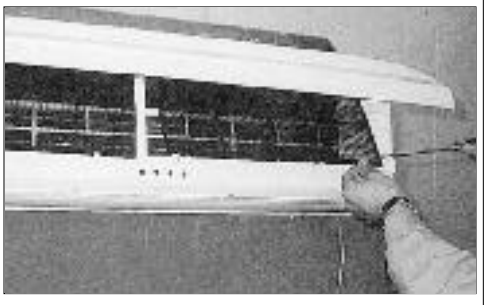
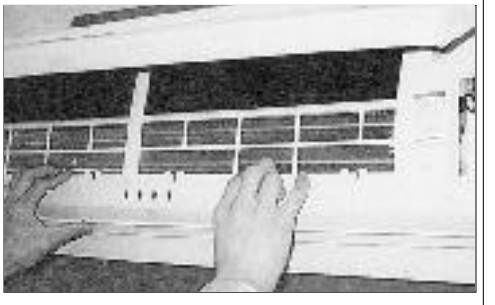
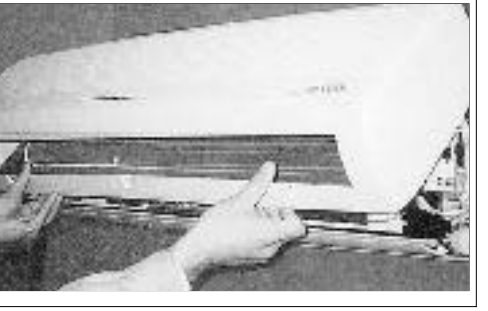


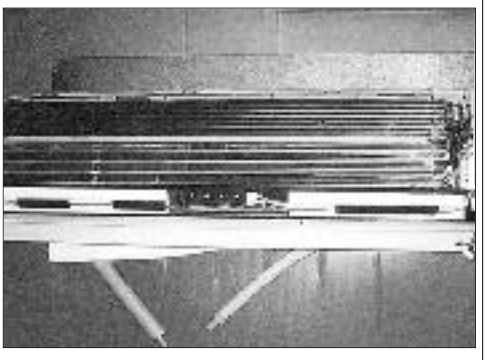
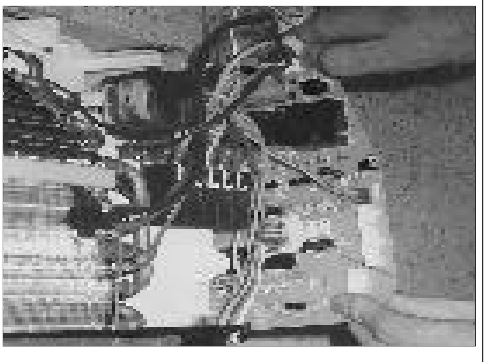
MEMO

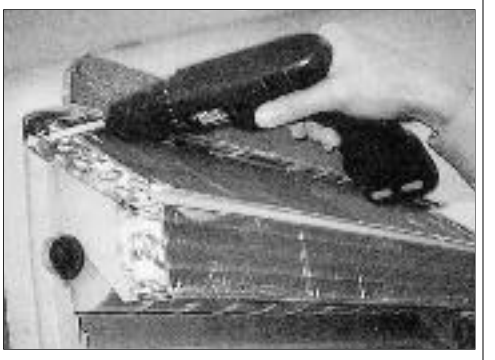
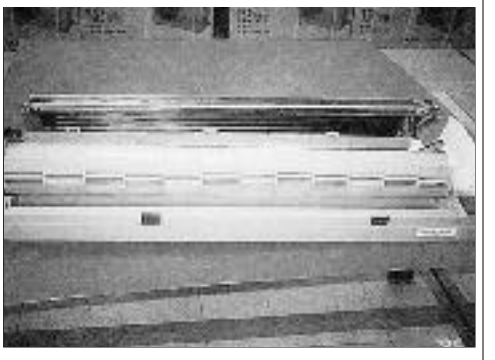
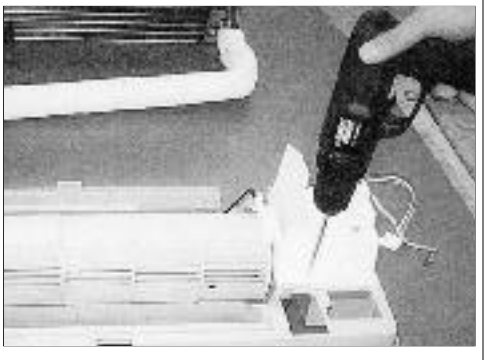
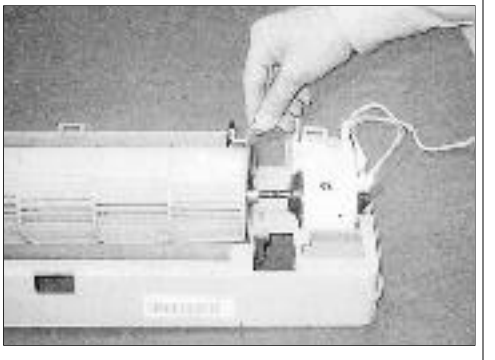
4. Disassembly and Reassembly

Stop operation of the air conditioner and remove the power cord before repairing the unit.

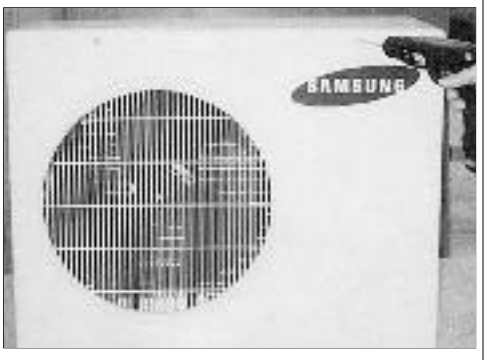
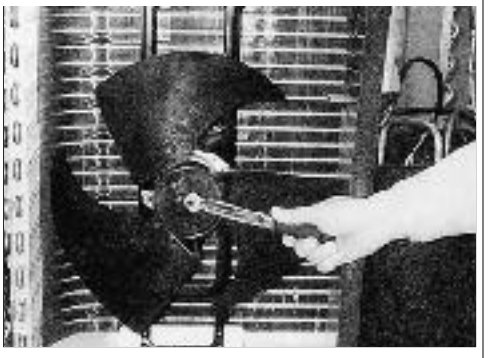
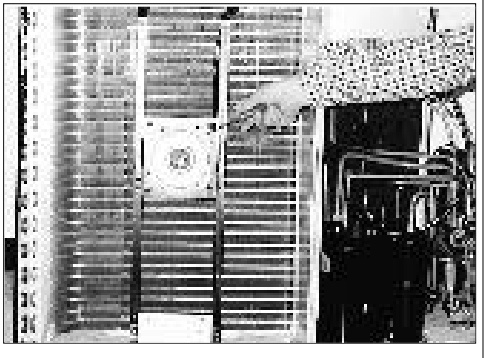
4-1 Indoor Unit

No	Parts	Procedure	Remark
1	Front Grille	1) Stop the air conditioner operation and block the main power. 2) Seperate the tape of front. Panel upper.	
		3) Contract the second finger to the left and right handle and pull to open the inlet grille. 4) Take the left and right filter out. 5) Loosen one of the right fixing screw and seperate the terminal cover.	
		6) Open the cover screw and loosen three fixing screws of front grille.	
		7) Pull the upper left and right of discharge softly for the outside cover to be pulled out.	
		8) Pull softly the lower part of discharge and push it up **Caution:** Assemble the front panel and fix the hooks of left and right.	

No	Parts	Procedure	Remark
2	Filter Frame	1) Loosen the left and right screw of the Holder Filter, and Separate the Holder Filter.	
3	Ass'y Tray Drain	1) Do ①② , above. Separate the holder at the rear side of Indoor unit. 2) Take the display PCB out. (Center of indoor unit). 3) Loosen three fixing screws of left and right. 4) Pull tray drain out from the back body.	
4	Main PCB	1) Do " ①② ", above 2) Take all the connector of PCB upper side out. 3) Separate the outdoor unit connection wire from the terminal block. 4) If pulling the Main PCB up, it will be taken out. (Separate the TRANS hook, it before).	

No	Parts	Procedure	Remark
5	Heat Exchanger	1) Do " ①②③④ ", above. 2) Loosen the left screws of the heat exchanger. Lifting the heat exchanger up a little to push the up side for separation from the indoor unit	 
6	Fan Motor and Cross Fan	1) Do " ①②③④⑤ ", above. 2) Loosen the fixing two screws and separate the motor holder. 3) Loosen the fixing screw of motor fan. (By use of M3 wrench) Separate the motor from the fan. Separate the fan motor the left holder bearing.	 

4-2 Outdoor Unit

No	Parts	Procedure	Remark
1	Cabinet	1) Turn off the unit and remove the power cable 2) Remove the top cover. 3) Remove the control box cover. 4) Unplug the ass'y cable. 5) Remove the cabi-side. 6) Remove the cabi-front. * When you assemble the parts, check if the each parts and electric connectors are fixed firmly.	
2	Fan Motor & Propeller Fan	1) Do Procedure ① above. 2) Remove the nut flange. (Turn to the right to remove as it is a left turned screw) 3) Disassemble the propeller fan.	 

5. Troubleshooting

5-1 Items to be checked first

1) Is the voltage of the power correct?
The input voltage shall be rating voltage ± 10% range.
The airconditioner may not operate properly if the voltage is out of this range.

2) Is the link cable linking the indoor unit and the outdoor unit linked properly?
The indoor unit and the outdoor unit shall be linked by 5 cables.
Check the terminals if the indoor unit and outdoor unit are properly linked by the same number of cables.
Otherwise the airconditioner may not operate properly.

3) When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the airconditioner.

NO	Operation of air conditioner	Explanation
1	The COOL operation indication LED (Green) blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, the compressor does not operate at a room temperature higher than the setting temperature that the IN DOOR FAN should operate. In a HEAT operation mode, the compressor does not operate at a room temperature lower than the setting temperature that indoor fan should operate.	In happens after a delay of 3 minutes when the compressor is reoperated. The same phenomenon occurs when a power is on. As a phenomenon that the compressor is reoperated after a delay of 3 minutes, the indoor fan is adjusted automatically with reference to a temperature of the air blew
3	Fan speed setting is not allowed in AUTO or DRY mode.	The speed of the indoor fan is set to LL in DRY mode. Fan speed is 5 steps is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in DRY mode.	Compressor operation is controlled automatically in DRY mode depending on the room temperature and humidity.
5	Timer LED only of the indoor unit lights up and the air conditioner does not operate.	Timer is being activated and the unit is in ready mode. The unit operates normally if the timer operation is cancelled.
6	The compressor stops intermittently in a COOL mode or DRY mode, and fan speed of the indoor unit decreases.	The compressor stops intermittently or the fan speed of the indoor unit decreases to prevent inside/outside air frozen depending on the inside/outside air temperature.

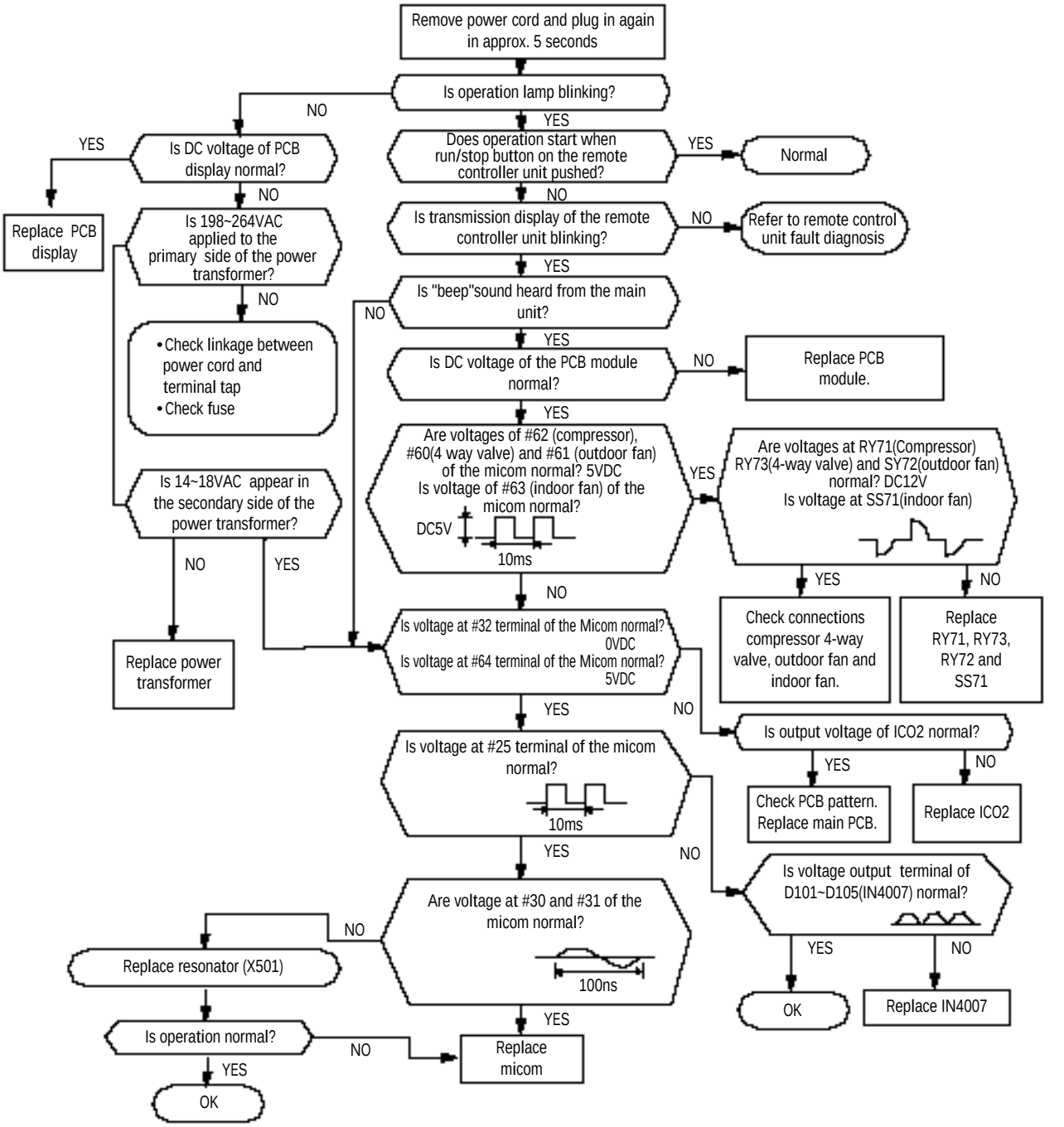
4) Indoor unit observes operation condition of the air conditioner, and displays self diagnosis details on the display panel.

NO	Display	Self Diagnosis
1	Operating LED blinking (1Hz)	Restore from power failure (input initial power)
2	TIMER LED blinking (1Hz)	Indoor unit Room sensor Error (open or short)
3	OPERATING and TIMER LED blinking (1Hz)	Indoor unit heat exchanger temperature sensor Error (open or short)
4	FAN LED blinking (1Hz)	Indoor fan malfunctioning (for speed is Below 38Orpm)

5-2 Fault Diagnosis by Symptom

5-2-1 No Power (completely dead)-Initial diagnosis

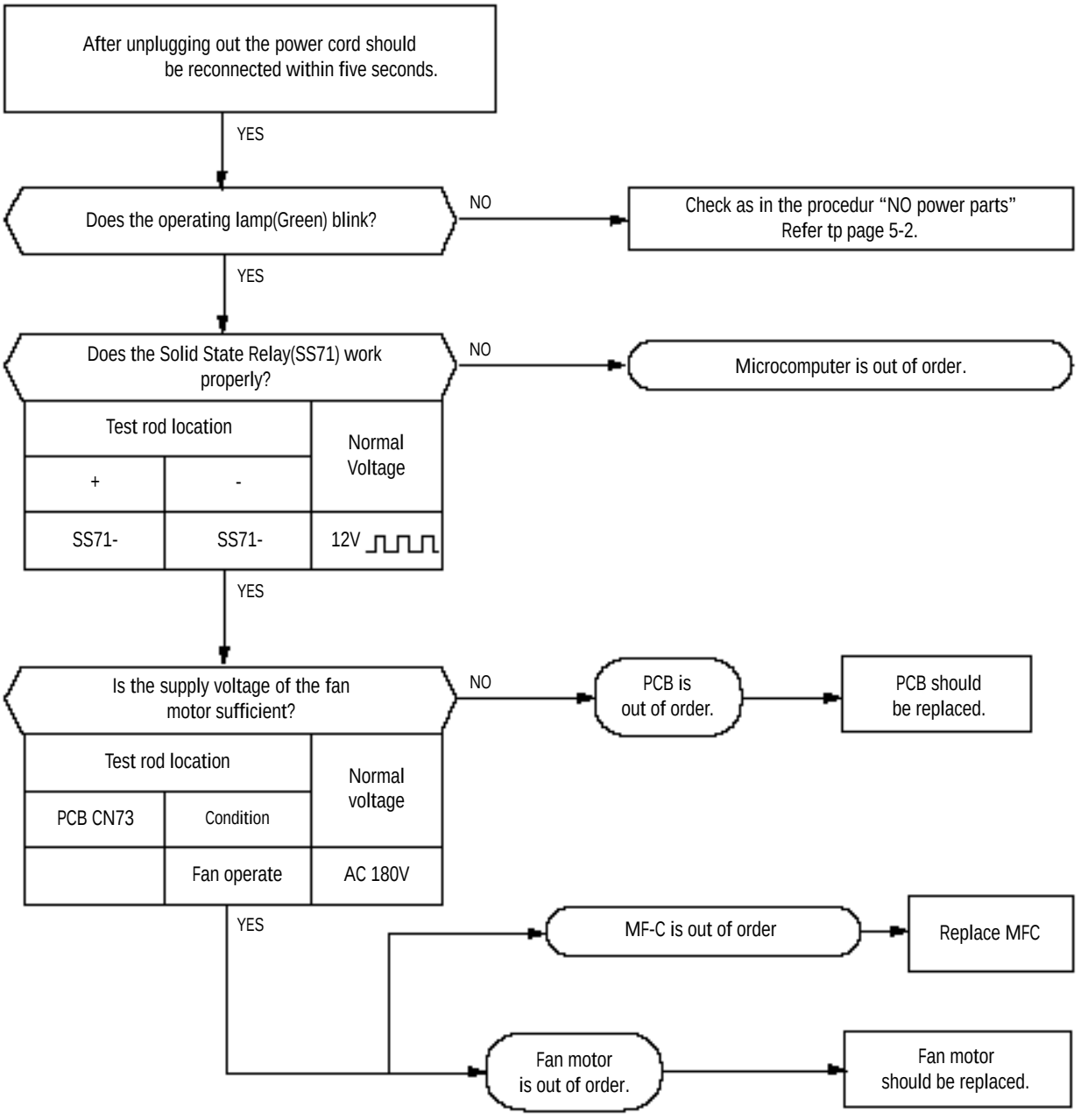
1) Checklist :
   (1) Is input voltage normal?
   (2) Is AC power linked correctly?
   (3) Are connections between primary side, secondary side of the power transformer and PCB good.
   (4) Is output voltage of DC regulator IC KA7812 (IC01) normal? (11VDC-12.5VDC)
   (5) Is output voltage of DC regulator IC KA7805 (IC02) normal? (4.5VDC-5.5VDC)



5-2-2 When the Indoor Unit Fan Does Not Operate. (Initial Diagnosis)

1) Checklist :
   (1) Is the indoor unit fan motor properly connected with the connector (CN73)?
   (2) Is the AC voltage correct?
   (3) Is HALL IC in indoor fan motor properly connected with the connector (CN43)?
   (4) Is the running capacitor properly connected with the terminal?

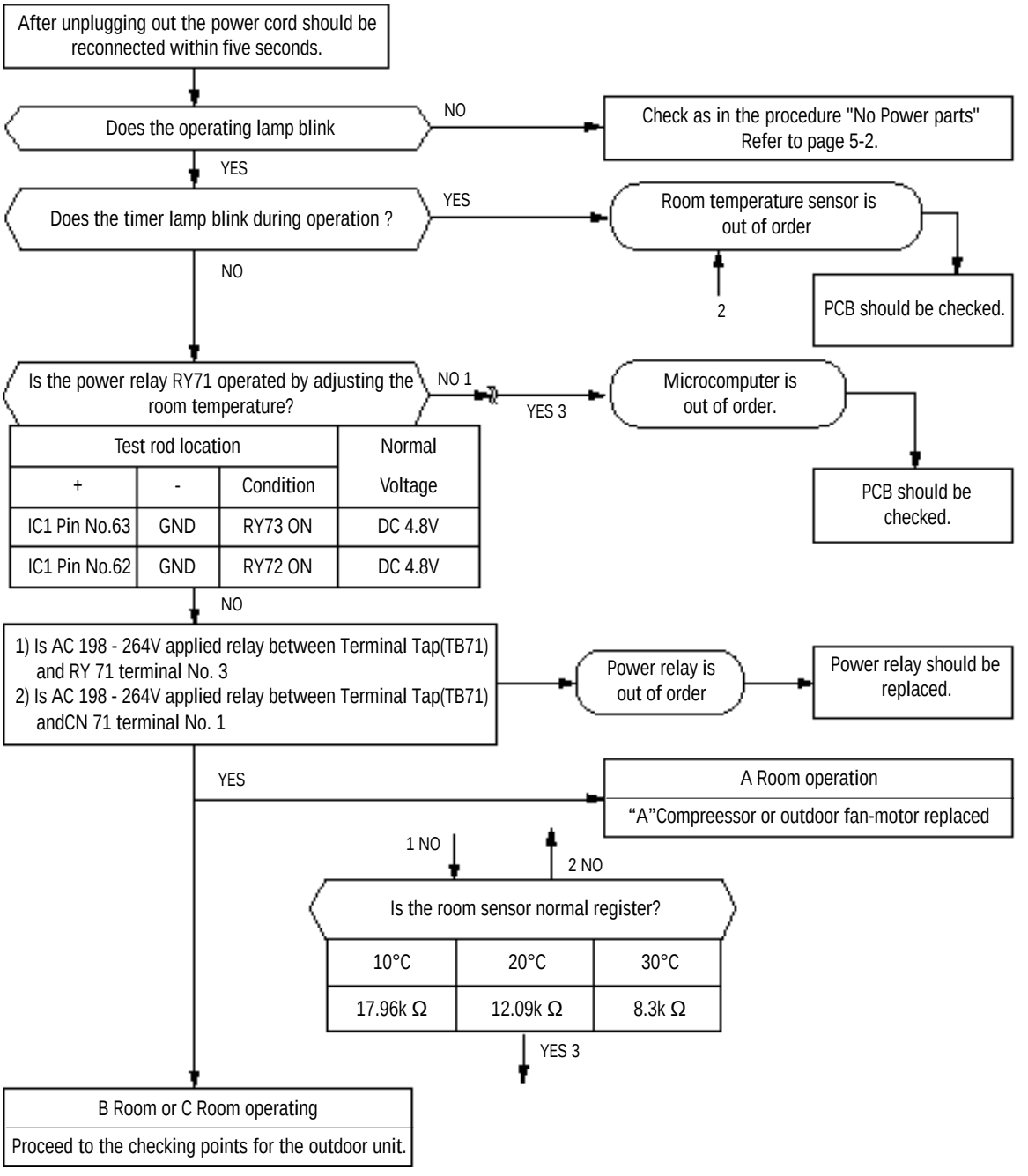
2) Troubleshooting procedure



5-2-3 When the Outdoor Unit Does Not Operate. (Initial Diagnosis)

1) Checklist :
   (1) Is input voltage normal?
   (2) Is the set temperature of the remote control higher than room temperature in COOL mode?
   (3) Is the POWER IN connector (terminal-tab) linked correctly?
   (4) Is the outdoor unit properly connected with the TERMINAL BLOCK connector(5P)?

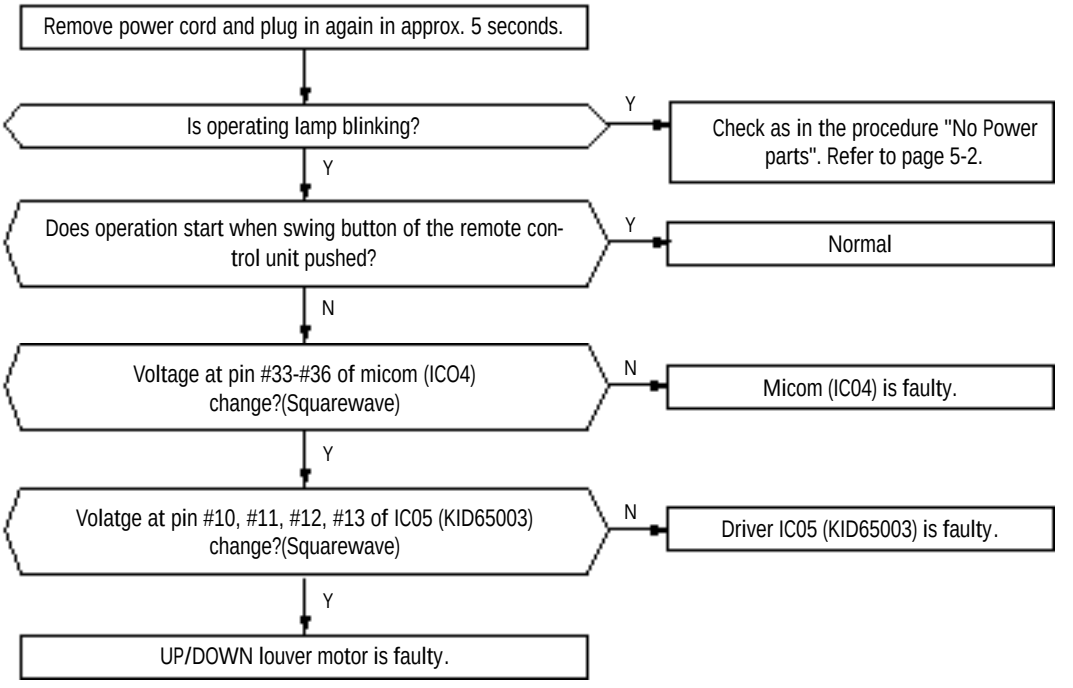
2) Troubleshooting procedure
   (1) Checking procedures for the indoor unit.



5-2-4 When the UP/DOWN Louver Moter Does Not Operate. (Initial Diagnosis)

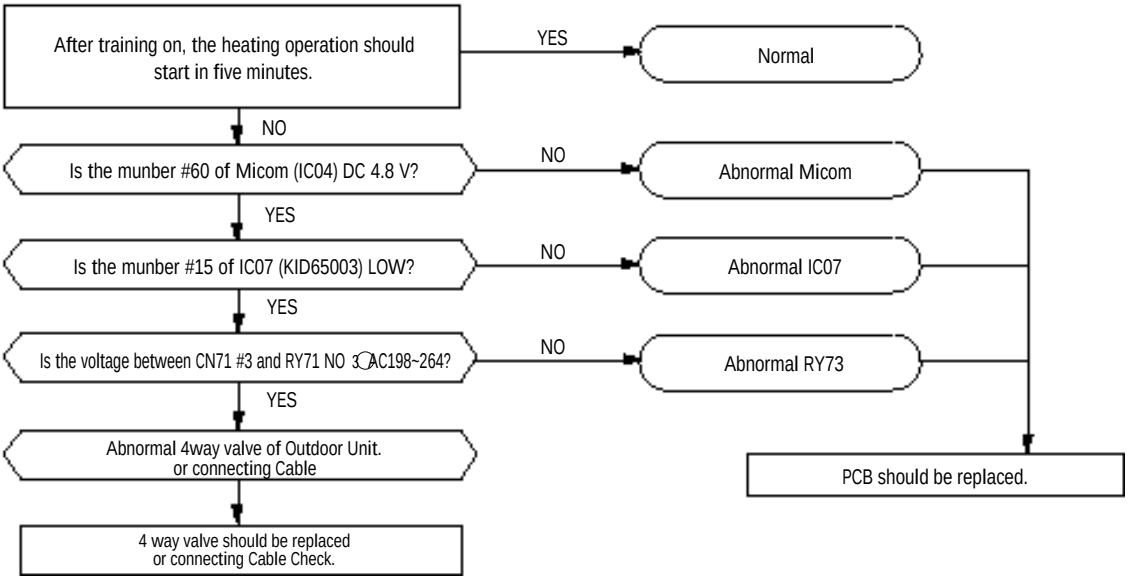
1) Checklist :
   (1) Is input voltage normal?
   (2) Is the UP / DOWN louver motor properly connected with the connector (CN61)?

2) Troubleshooting procedure


Remove power cord and plug in again in approx. 5 seconds.
Is operating lamp blinking?
Y
Check as in the procedure "No Power parts". Refer to page 5-2.
Y
Does operation start when swing button of the remote control unit pushed?
Y
Normal
N
Voltage at pin #33-#36 of micom (ICO4) change?(Squarewave)
N
Micom (IC04) is faulty.
Y
Volatge at pin #10, #11, #12, #13 of IC05 (KID65003) change?(Squarewave)
N
Driver IC05 (KID65003) is faulty.
Y
UP/DOWN louver motor is faulty.

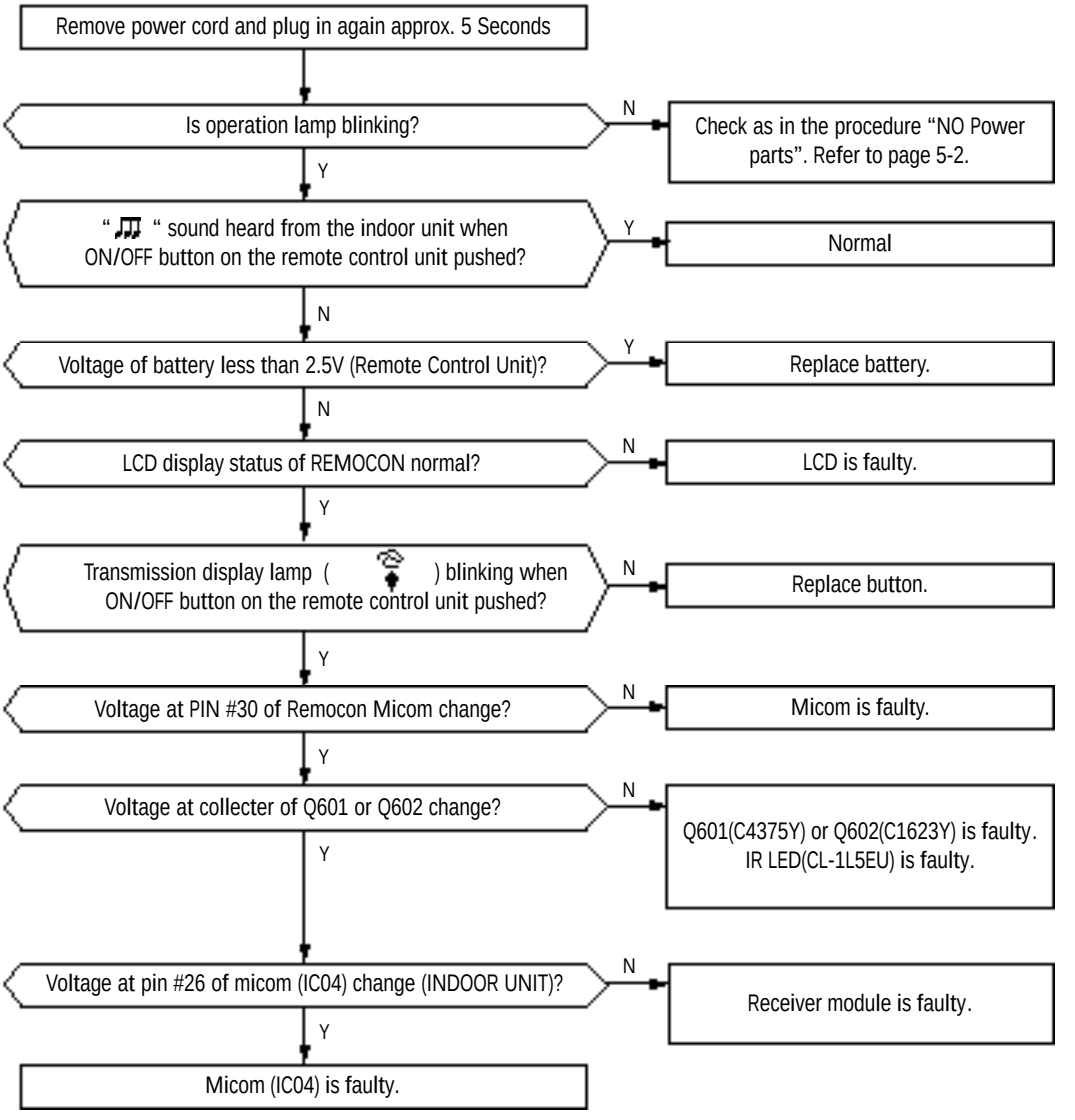
5-2-5 In the mode, When there is no warm air current. Check this first;

(1) Is the set temperature of Remote Control lower than room temperature in Heat mode?
(2) Is the Indoor PCB properly connected with the CN71 connector?


After training on, the heating operation should start in five minutes.
YES
Normal
NO
Is the munber #60 of Micom (IC04) DC 4.8 V?
NO
Abnormal Micom
YES
Is the munber #15 of IC07 (KID65003) LOW?
NO
Abnormal IC07
YES
Is the voltage between CN71 #3 and RY71 NO 3 AC198~264?
NO
Abnormal RY73
YES
Abnormal 4way valve of Outdoor Unit. or connecting Cable
4 way valve should be replaced or connecting Cable Check.
PCB should be replaced.

5-2-6 If Operation By Remote Control Unit Is Impossible. (Initial Diagnosis)

1) Troubleshooting procedure


Remove power cord and plug in again approx. 5 Seconds
Is operation lamp blinking?
N
Check as in the procedure "NO Power parts". Refer to page 5-2.
Y
" ♫ " sound heard from the indoor unit when ON/OFF button on the remote control unit pushed?
Y
Normal
N
Voltage of battery less than 2.5V (Remote Control Unit)?
Y
Replace battery.
N
LCD display status of REMOCON normal?
N
LCD is faulty.
Y
Transmission display lamp ( ) blinking when ON/OFF button on the remote control unit pushed?
N
Replace button.
Y
Voltage at PIN #30 of Remocon Micom change?
N
Micom is faulty.
Y
Voltage at collecter of Q601 or Q602 change?
N
Q601(C4375Y) or Q602(C1623Y) is faulty.
IR LED(CL-1L5EU) is faulty.
Y
Voltage at pin #26 of micom (IC04) change (INDOOR UNIT)?
N
Receiver module is faulty.
Y
Micom (IC04) is faulty.

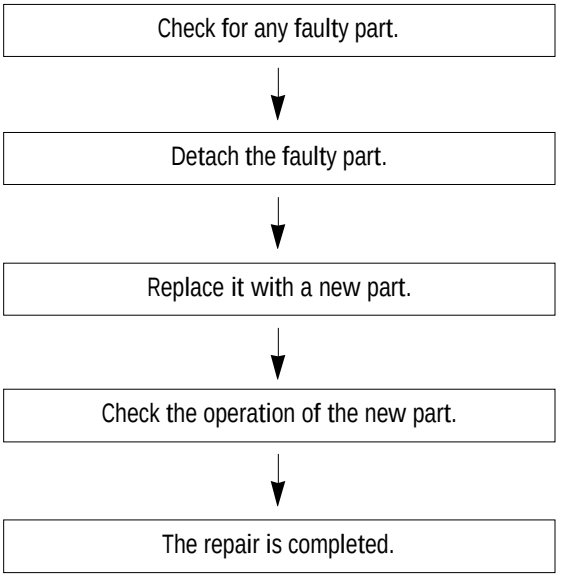
5-3 PCB Inspection

5-3-1 Cautions for Part Replacement

1. The human body carries much static electricity. Before touching a part for repair, replacement or the similar purpose, be sure to touch a grounded metallic portion by hand to let the static electricity go through the matallic portion to the earth. Espectially when handling any micro computer or IC, carefully remove such static electricity before touching them.
2. When repairing any part on a work bench, be sure to place an insulative sheet on the bench and always keep the sheet surface neat without any metal fragments. If any such fragment touches a part, a secondary trouble will possibly be caused in the part.
3. Before replacing any parts, be sure to turn off the power supply. If such replacement is done with the power supply kept on, an electric shock, short circuit or destruction of a part may result.
4. During replacement or repair of a part, carefully handle it : The printed circuit board has fine lead wires (jumper wires) and glass-made parts (diode) on its substrate. So if a circuit board is roughly handled, such lead wires and parts will be easily broken or damaged by bending or shock.
5. When soldering the lead wires of any new part, be sure to polish them using an emery paper or the like before solding them. Since the lead wires of any new part are covered with an oxide film, solder cannot adhere to the lead wires if not polished.
6. When soldering any part, care should be exercised not to apply any high-wattage soldering iron to the part for a long time. Some parts are of so low a heat resistance that they may be broken or have the properties changed if a soldering iron is so applied (Otherwise, the pattern may possibly be separated and raised).
7. The heat of the soldering iron should be transfered to the entire object to be soldered. If the solder pieces are not well fused due to insufficient transfer of the heat from the soldering iron, no satisfactory electrical continuity can be assured even if the soldered objects appear well connected to each other.
8. The solder used should be limited to a minimum. If excessive solder is used, it will cause inter-pattern contact, which may cause malfunction of the circuit.

5-3-2 Procedure

The parts should be replaced in the following procedure.


Check for any faulty part.
Detach the faulty part.
Replace it with a new part.
Check the operation of the new part.
The repair is completed.

5-3-3 Detailed Procedure

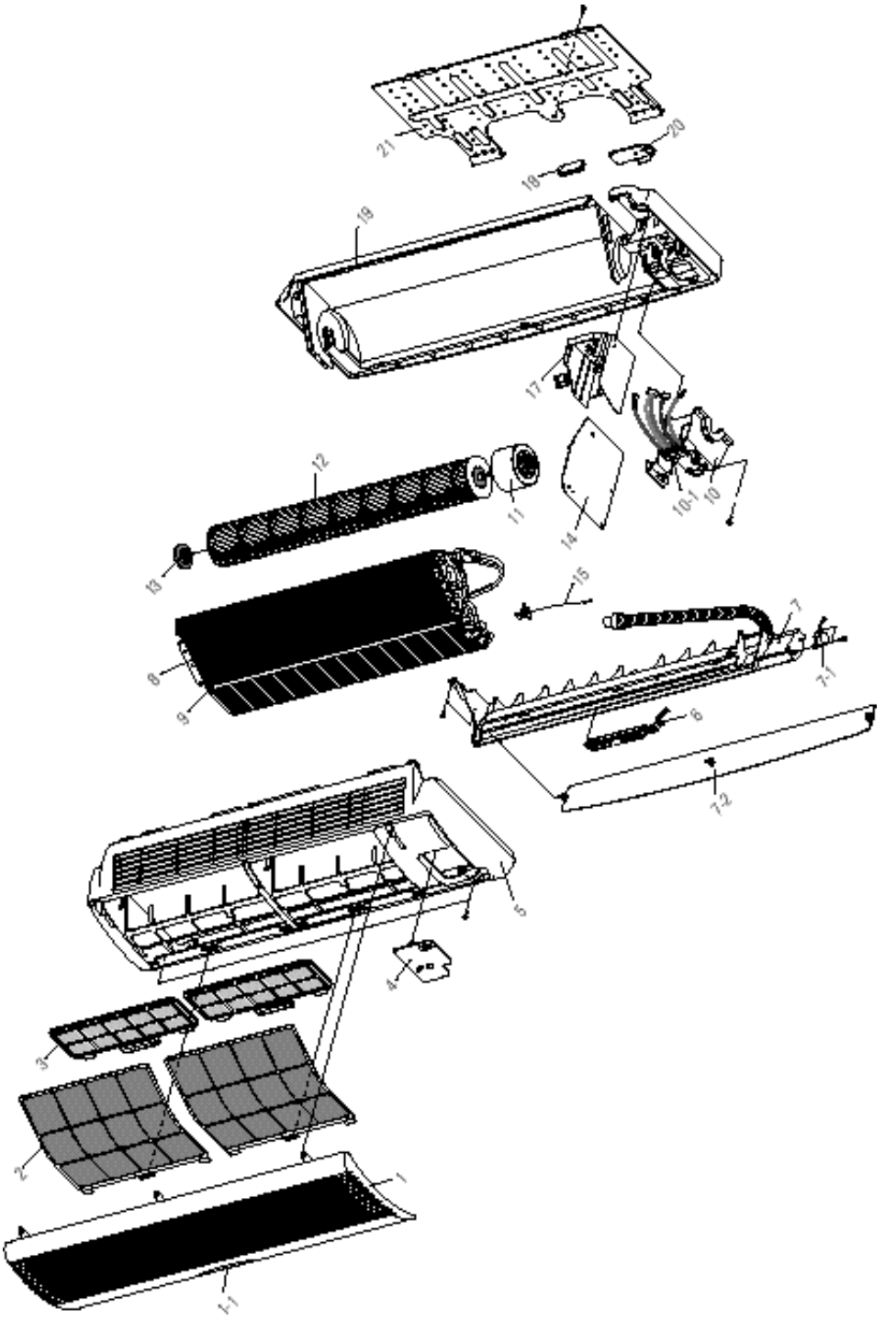
No.	Malfunction	Checking point (symptoms)	Causes
1	Pull out the power plug from the AC terminal and check the fuse on the PCB assembly	1. Is the fuse blown?	1. Voltage over 2. Indoor unit fan motor short-circuit.
2	Ture the power on. If lamp blinks trouble is not related to the items 1 through 4 on the right.	Voltage check	
		1. AC voltage at both end of transformer Primary? 198 - 264V~	1. Irregular power code or power fuse, or poor wiring.
		2. AC voltage at both end of transformer secondary? 14 - 18Vac	2. Transformer is faulty.
		3. DC voltage at OUT and GND of IC01 (KA7812)? 12VDC	3. Power circuit is faulty.
		4. DC voltage at OUT and GND of IC02? 5VDC	4. Power circuit is faulty.
		5. DC voltage at Q201 Base and GND change? Squarewave	5. Q201 is faulty. D101~D104 (1N4007*4) is faulty.
3	Set operating mode when RMC switch pushed. Except for [FAN] and [TIMER] mode.	Voltage check	
		1. Voltage of relay (RY71) coil Voltage at pin#12, pin#5 of IC07 : 12VDC	1. Relay (RY 71) coil is open. IC07 is faulty.
		2. Voltage at Terminal Tap (TB71) and RY71 Termina N0③. 198- 264V~	2. Relay (RY 71) contactor is faulty.
4	Set operating mode when RMC switch pushed. 1. COOL mode 2. Fan speed [AUTO] 3. Set temperature lower than room temperature 4. Continuously operation.	1. Compressor does not operate.	1. Temperature of Heat exchange is lower.
			2. PCB is faulty.
			3. Room sensor or Heat exchange temperature sensor is faulty
5	Set operating mode when RMC switch pushed. 1. [FAN] mode 2. Fan speed [HI] 3. Continuously operation.	1. Voltage at ③⑤ both ends of CN73 : above 180V~	1. Indoor unit fan motor is faulty.
		2. Indoor unit fan motor does not operate.	2. Poor connection of indoor fan motor and connector of RPM sensing (CN43).

5-4 Fault Diagnosis of Major Parts

<table>
<tr><th>Parts</th><th colspan="2">Diagnosis</th></tr>
<tr><td rowspan="3">Temp.Sensor
Heat ex. Sensor</td><td colspan="2">Measure resistance with a tester.</td></tr>
<tr><td>Normal</td><td>8KΩ~27KΩ at ambient temperature (+0°C ~ +30°C)</td></tr>
<tr><td>Abnormal</td><td>∞, 0 Ω … open or short</td></tr>
<tr><td rowspan="5">Indoor Fan Motor</td><td colspan="2">Measure resistance between terminals (CN73) with a tester</td></tr>
<tr><td>Normal</td><td>At ambient temperature (10°C ~ 30°C)
<table>
<tr><th>Between</th><th>Resistance</th></tr>
<tr><td>Red, Yellow</td><td>190±10Ω</td></tr>
<tr><td>Red, Blue</td><td>165±15Ω</td></tr>
</table></td></tr>
<tr><td>Abnormal</td><td></td></tr>
<tr><td colspan="2">Measure the voltage between ground and signal wire of the fan motor</td></tr>
<tr><td>Normal</td><td>
<table>
<tr><th>Between</th><th>Voltage</th></tr>
<tr><td>Gray, Orange</td><td>0.5V~4.5V</td></tr>
<tr><td>Yellow, Orange</td><td>5V</td></tr>
</table></td></tr>
<tr><td></td><td>Abnormal</td><td>Abnormal if voltage does not change from 0V to 5V.</td></tr>
<tr><td rowspan="3">Outdoor Fan Motor</td><td>Normal</td><td>At ambient temperature (10°C ~ 30°C)
<table>
<tr><th>Between</th><th>Resistance</th></tr>
<tr><td>Black, Yellow</td><td>189±10Ω</td></tr>
<tr><td>Black, Red</td><td>190±10Ω</td></tr>
</table></td></tr>
<tr><td></td><td>Abnormal</td><td>∞, 0 Ω … open or short</td></tr>
<tr><td rowspan="3">Stepping Motor
(UP/DOWN swing motor)</td><td colspan="2">Measure resistance between red wire and each terminal.</td></tr>
<tr><td>Normal</td><td>Approx. 380Ω at ambient temperature (20°C ~30°C)</td></tr>
<tr><td>Abnormal</td><td>∞, 0 Ω … open or short</td></tr>
</table>

6. Exploded Views and Parts List

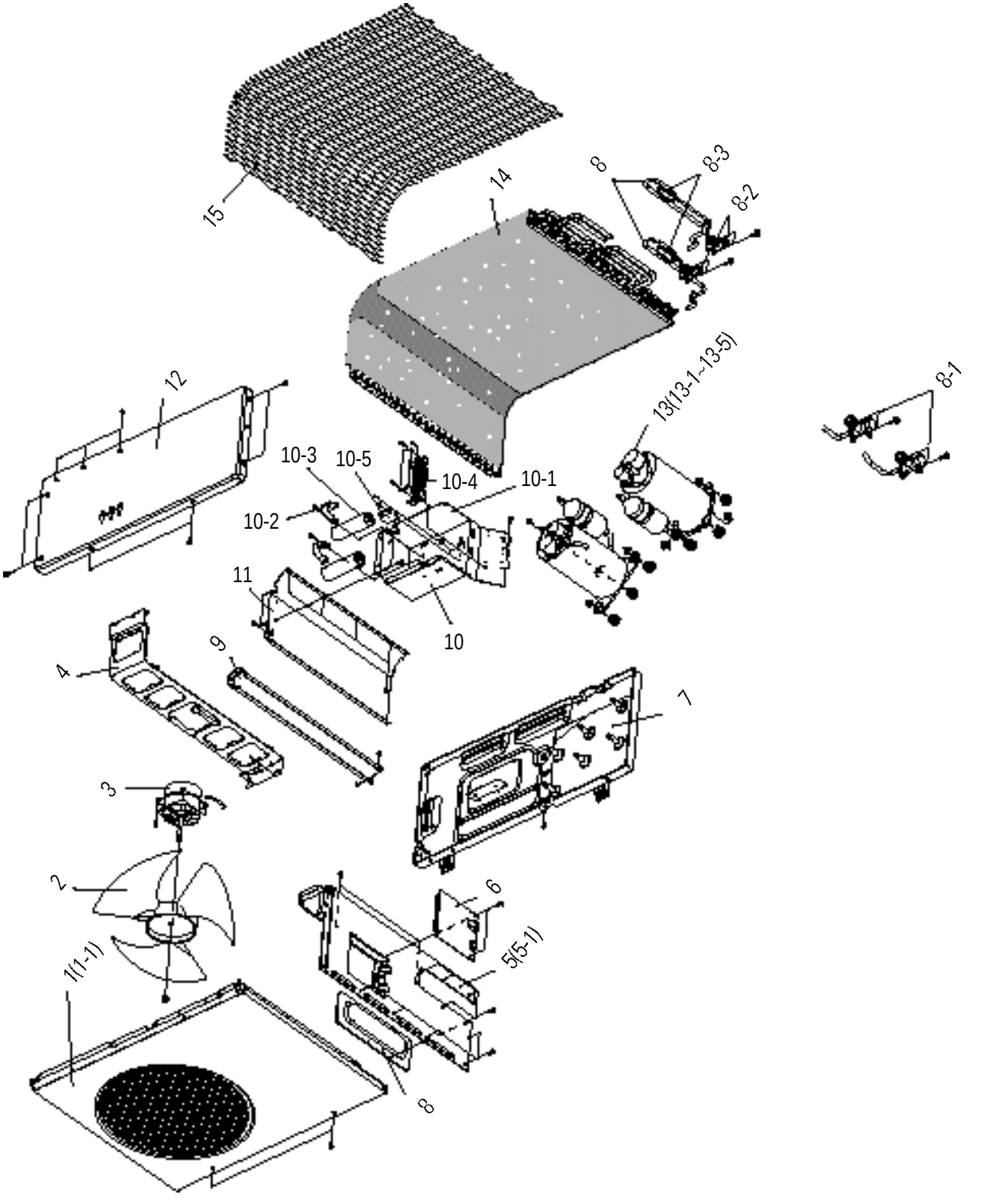
6-1 Indoor Unit



■ Parts List

No.	CODE NO	Description	Specification	Q'TY				Remark
				AM18A1(B1)E09	AM18A1(B1)B09	AM19A1(B1)E12	AM19A1(B1)E07	
1	DB64-10140A	GRILLE AIR INLET	ABS	1	1	1	1	
1-1	DB64-70073A	PANEL CENTER DISPLAY	PC	1	1	1	1	
2	DB63-30131A	GUARD AIR FILTER	PP	2	2	2	2	
3	DB74-10091A	ASS´Y FILTER	CLEANER/CARBON	(1)	(1)	(1)	(1)	OPTION
	DB74-10091B	ASS´Y FILTER	CLEANER/CARBON	(1)	(1)	(1)	(1)	OPTION
4	DB63-10472B	COVER TERMINAL	HIPS	1	1	1	1	
5	DB92-70075E	ASS´Y FRONT PANEL	ASS´Y	1	1	1	1	
6	DB93-10560B	ASS´Y PCB DISPLAY	ASS´Y(AI-GRILLE)	1(A1)	1(A1)	1(A1)	1(A1)	⚠
	DB93-10561B	ASS´Y PCB DISPLAY	ASS´Y(BI-GRILLE)	1(B1)	1(B1)	1(B1)	1(B1)	
7	DB94-10088A	ASS´Y TRAY DRAIN	ASS´Y	1	1	1	1	
7-1	DB95-20138A	ASS´Y STEP MOTOR U/D	DC12V.600GR	1	1	1	1	
7-2	DB66-30153A	BLADE-H	HIPS	1	1	1	1	
8	DB75-40077B	ASS´Y EVAP	ASS´Y	1	1	1	1	
9	DB67-30058C	SPACER EVAP	PVC	1	1	1	1	
10	DB61-00011B	HOLDER MOTOR ASS´Y	ASS´Y	1	1	1	1	⚠
10-1	DB65-00007A	ASS´Y TERMINAL BLOCK	ASS´Y	1	1	1	1	
11	DB31-10078H	MOTOR FAN IN	AMPFS040WTVB	1	1	1	1	
12	DB94-30141A	ASS´Y-C-F-FAN	Ø95 X 619.4mm	1	1	1	1	
13	DB94-40017A	ASS´Y BEARING	ASS´Y	1	1	1	1	
14	DB93-10583A	ASS´Y MAIN PCB	ASS´Y	1	1	-	-	⚠
	DB93-00066A	ASS´Y MAIN PCB	ASS´Y	-	-	1	-	⚠
	DB93-00065A	ASS´Y MAIN PCB	ASS´Y	-	-	-	1	⚠
15	DB32-10008D	THERMISTOR ASS´Y	ASS´Y	1	1	1	1	
17	DB61-10151A	CASE-CONTROL	ABS(94-5V)	1	1	1	1	
18	DB61-60093A	BODY-BUSH	HIPS	1	1	1	1	
19	DB94-20030C	ASS´Y BACK BODY	ASS´Y	1	1	1	1	
20	DB61-40247A	HOLDER PIPE	HIPS	1	1	1	1	
21	DB70-10618A	PLATE HANGER	SGCC-M	1	1	1	1	

6-2 Outdoor Unit

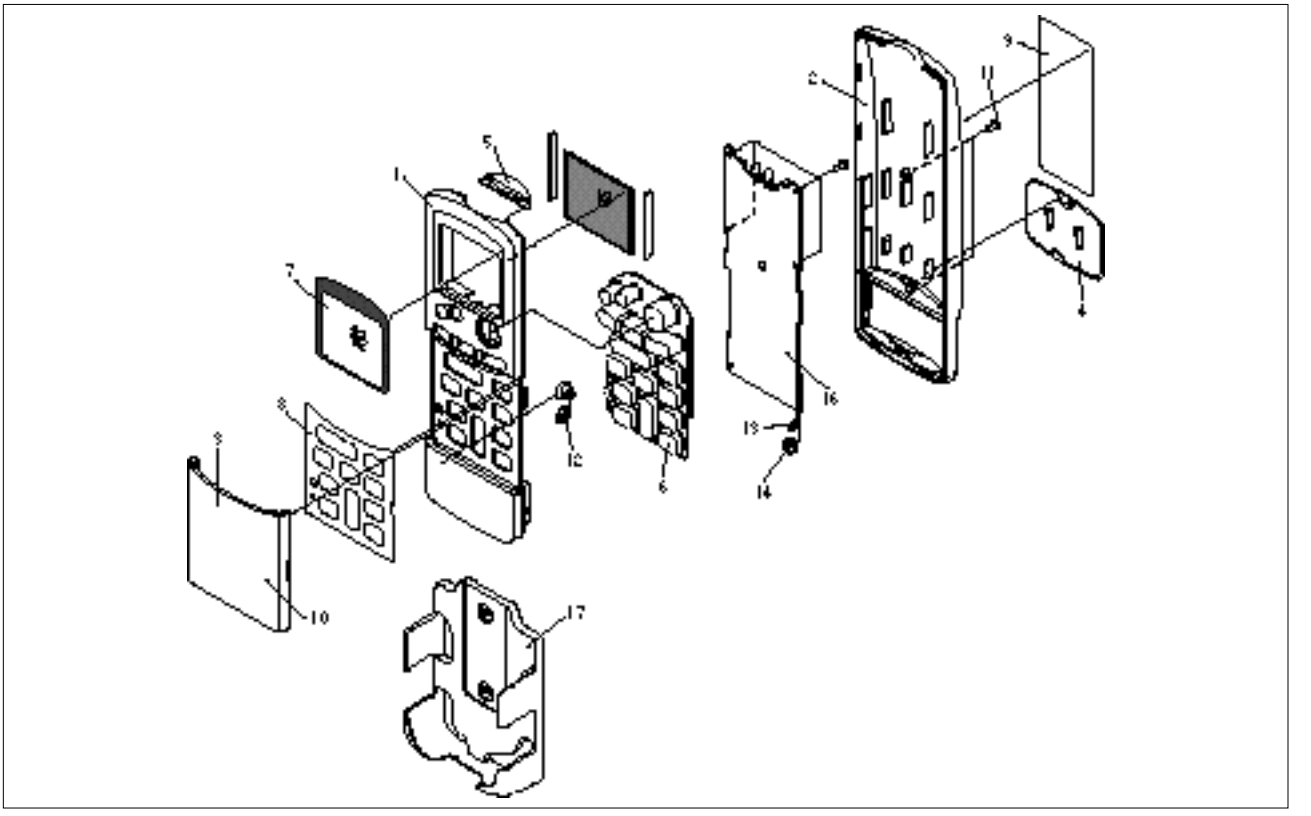


■ Parts List

No.	CODE NO	Description	Specification	Q'TY			Remark
				UM18A1(B1)E2	UM18A1(B1)B2	UM19A1(B1)E2	
1	DB90-10153J	ASS'Y-WELD FRONT	SC-90073J	1	1	1	
1-1	DB72-60034A	INSUL FRONT	FOAM PE + FOAM PU	1	1	1	
2	DB67-50063A	FAN-PROPELLER	AS+G/F20%	1	1	1	
3	DB31-10119B	MOTOR-FAN OUT	AMASS-035AVEA	1	-	1	⚠
	DB31-10119E	MOTOR-FAN OUT	AMASS-035ETEC	-	1	-	⚠
4	DB61-20008C	BASE-MOTOR	SGCC-M	1	1	1	
5	DB64-60130A	CABINET-SIDE	SECC-P	1	1	1	
5-1	DB72-60035A	INSUL SIDE	FOAM PE + FOAM PU	1	1	1	
6	DB90-40168A	ASS'Y COVER-TERMINAL	ASS'Y	1	1	1	
7	DB90-20211A	ASS'Y-BASE OUT	UM18A1(B1)E2	1	1	-	
	DB90-00018A	ASS'Y-BASE OUT	UM19A1(B1)E2	-	-	1	
8	DB99-10064A	ASS'Y-VALVE	UM18A1(B1)E2	1	1	-	
	DB99-00005A	ASS'Y-VALVE	UM19A1(B1)E2	-	-	1	
8-1	DB62-40095A	VALVE-PACKED 3/8"	3/8"	2	2	1	
	DB62-00026A	VALVE-PACKED 1/2"	1/2"	-	-	1	
8-2	DB62-40094A	VALVE-PACKED 1/4"	1/4"	2	2	2	
8-3	DB62-31368A	TUBE CAPI. C	ID 1.5 x 800	2	2	-	
	DB62-31965F	TUBE-CAPILLARY-A	ID 1.42 x 900	-	-	1	
	DB62-31965G	TUBE-CAPILLARY-B	ID 1.7 x 800	-	-	1	
9	DB63-30025D	GUARD-COND	SC-90073T	1	1	1	
10	DB93-00027A	ASS'Y CONTROL OUT	UM18A1(B1)E2	1	-	-	⚠
	DB93-40782A	ASS'Y CONTROL OUT	UM18A1(B1)B2	-	1	-	⚠
	DB93-00029A	ASS'Y CONTROL OUT	UM19A1(B1)E2	-	-	1	⚠
10-1	DB61-10199A	CASE-CONTROL OUT	SGCC-M	1	1	1	
10-2	DB65-10015A	CLIP-CAPACITOR	SGCC-M	2	2	2	
10-3	2501-001062	C-OIL	30μF x 420V	2	-	1	
	2501-001157	C-OIL	20μF x 450V	-	2	-	
	2501-000335	C-OIL	25μF x 450V	-	-	1	
10-4	DB65-40072B	TERMINAL BLOCK	8P	1	1	1	
10-5	2501-001066	C-OIL	2.5μF x 450V	1	1	1	
11	DB94-50036A	ASS'Y-PARTITION	ASS'Y	1	1	1	
11-1	DB72-60034B	INSUL PARTITION	FOAM PE + FOAM PU	1	1	1	
12	DB90-10613A	ASS'Y CABI UPPER	ASS'Y	1	1	1	
13	DB95-10065N	ASS'Y-COMP	44B092JW1E6	2	-	-	⚠
	DB95-10062Y	ASS'Y-COMP	48A124JV1E5	-	-	1	⚠
	DB95-10065C	ASS'Y-COMP	44B092IW1E5	-	2	-	⚠
	DB95-10065K	ASS'Y-COMP	44A070JW1E1	-	-	1	⚠
13-1	DB73-10004A	GROMMET-ISOLATOR	EPDM	6	6	6	
13-2	DB60-30028A	NUT-HEXAGON	M8	6	6	6	
13-3	DB60-30018A	NUT-FLANGE	P10.8	2	2	2	
13-4	DB63-10165B	COVER-TERMINAL	NORYL	2	2	2	
13-5	DB47-20002B	OLP	MRA12037-12007	2	-	-	
	DB47-20001E	OLP	MRA12030-12008	-	-	1	
	DB47-20002A	OLP	MRA12032-12008	-	2	-	
	DB47-20001Y	OLP	MST24AMN-12008	-	-	1	
14	DB96-00050A	CONDENSER	ASS'Y	-	-	1	
	DB96-30296A	CONDENSER	ASS'Y	1	1	-	
15	DB63-30130B	SCREEN-GUARD	P.E.H 100%	1	1	1	

6-3 Remote Control & PCB Box

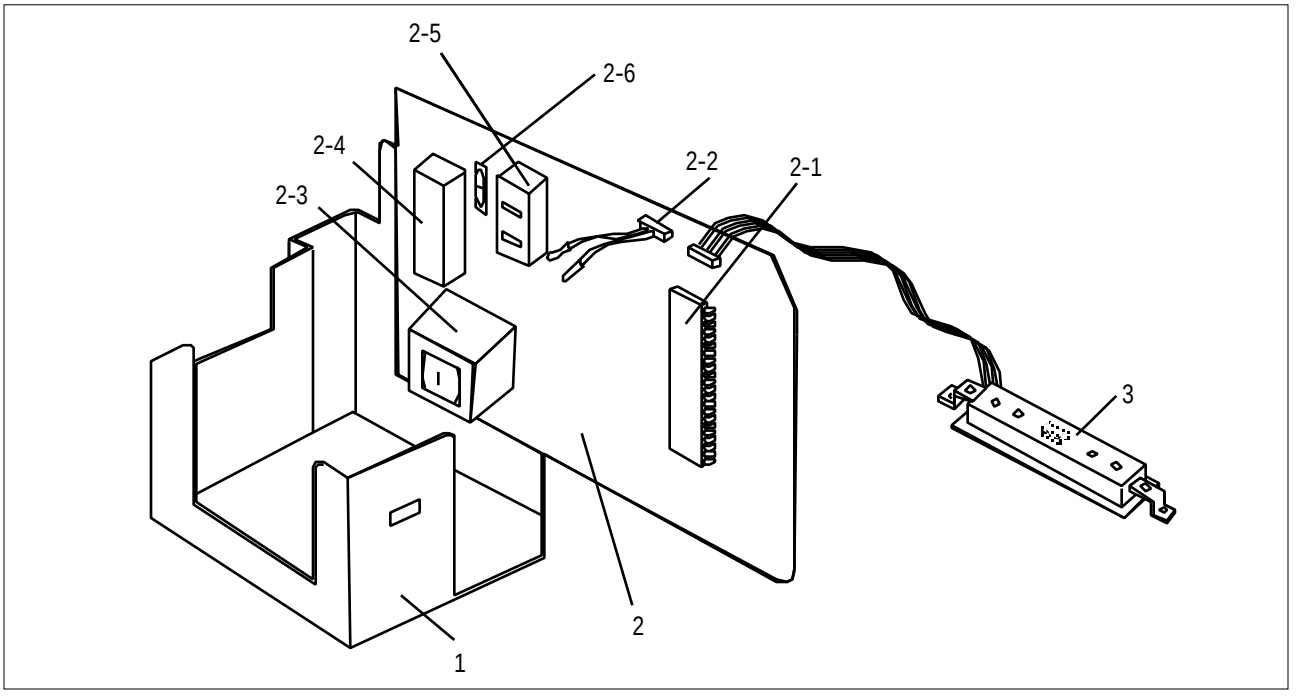
6-3-1 Remote Control



■ Parts List

No	CODE NO	Description	Specification	Q'TY	Remark
	DB93-30071F	ASS'Y CODE			
1	DB61-10144A	CASE UP	ABS	1	
2	DB61-10145A	CASE LOW	ABS	1	
3	DB64-20054A	DOOR REMOCON	ABS	1	
4	DB63-10477A	COVER BATTERY	ABS	1	
5	DB74-10084A	FILTER REMOCON	PC	1	
6	DB73-20110B	RUBBER REMOCON	SILICON	1	
7	DB64-40167A	INLAY LCD	PC	1	
8	DB64-40166B	INLAY REMOCON	PC	1	
9	DB68-10775A	LABEL REMOCON	ART 90	1	
10	DB68-10777A	LABEL DOOR	ART 90	1	
11	PH-M2	SCREW TAP	PH-M2	6	
12	DB67-60061A	SPRING BATTERY	SUS 304	1	
13	DB67-60062A	SPRING BATTERY	SUS 304	1	
14	DB67-60063A	SPRING BATTERY	SUS 304	1	
15	90 X 250	PE BAG	90 X 250	1	
16	DB93-40179B	ASS'Y PCB REMOCON		1	
17	DB61-40243A	HOLDER REMOCON	ABS	1	

6-3-2 PCB Box



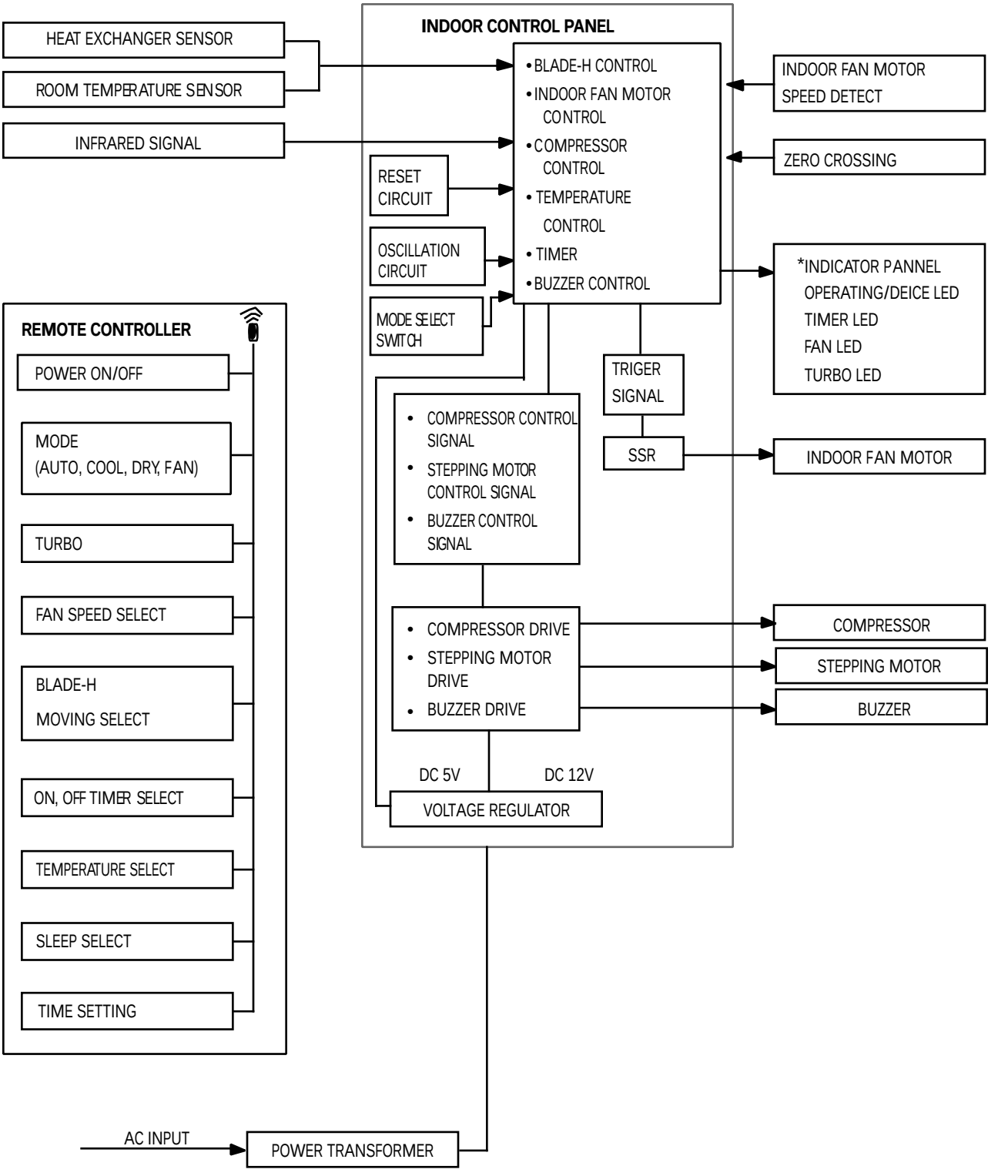
■ Parts List

No	CODE NO	Description	Specification	Q'TY				Remark
				AM18A1(B1)E09	AM18A1(B1)B09	AM19A1(B1)E12	AM19A1(B1)E07	
1	DB61-10151A	CASE-CONTROL	ABS(94-5V)	1	1	1	1	
2	DB93-10583A	ASS'Y MAIN PCB	-	1	1	-	-	
	DB93-00066A	ASS'Y MAIN PCB	-	-	-	1	-	
	DB93-00065A	ASS'Y MAIN PCB	-	-	-	-	1	
2-1	DB09-10149A	IC-MCU	MB89635R-466	1	1	1	1	
2-2	DB32-10008D	THERMISTOR-ASS'Y	103AT	1	1	1	1	
2-3	DE26-20154A	TRANS-POWER	AC230V DC17V 300mA	1	1	1	1	
2-4	2306-000294	C-FILM	CFS 99N 450VAC 155K	1	1	1	1	
2-5	3501-001058	POWER-RELAY	DI1U DC12V	1	1	1	1	
2-6	DE32-10037A	FUSE	250V 3.15A	1	1	1	1	
3	DB93-10560B	ASS'Y PCB DISPLAY	AI-GRILLE	1	1	1	1	
	DB93-10561B	ASS'Y PCB DISPLAY	BI-GRILLE	1	1	1	1	

MEMO

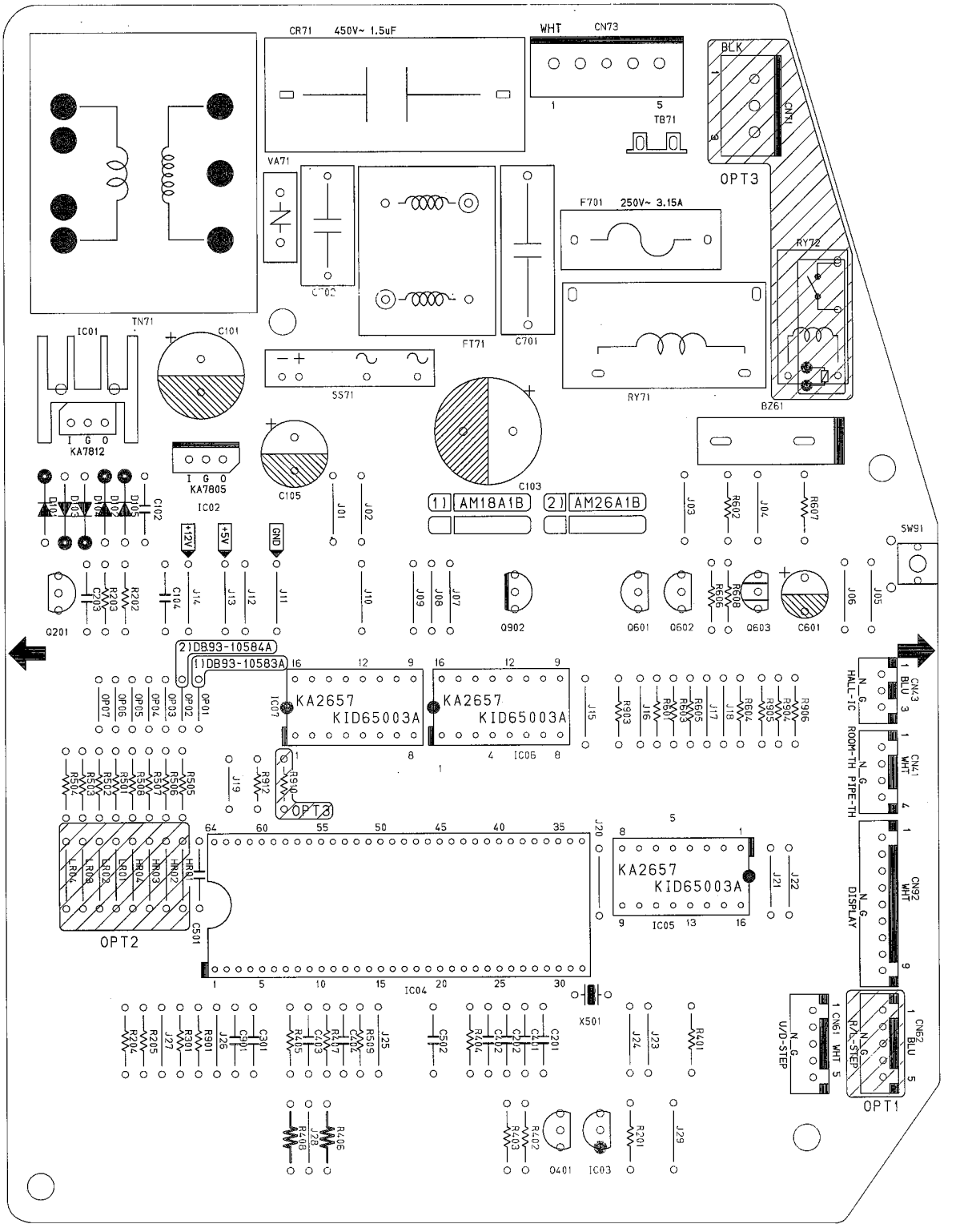
7. Block Diagrams

7-1 Micro Computer Block Diagram



8. PCB Diagrams

8-1 Main PCB



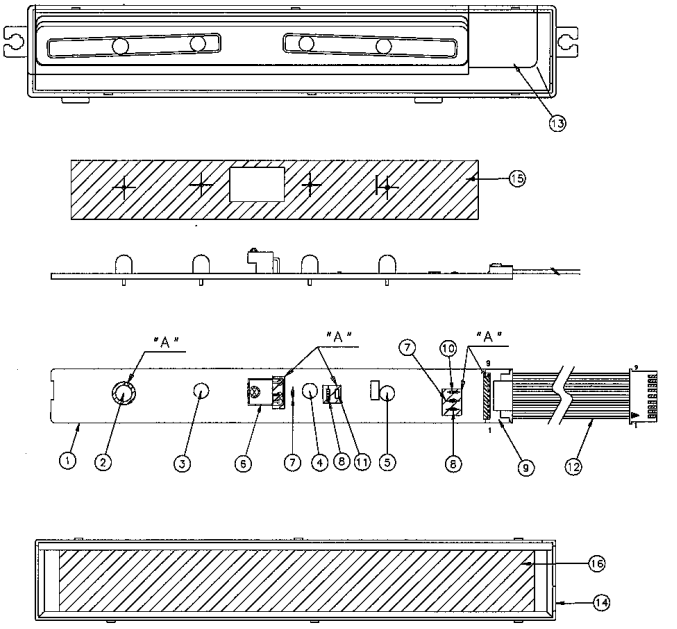
■ PART LIST

No	DESIGN LOCATION	CODE NO	Description	Specification	Q'TY
1	F701	DE32-10037A	FUSE	FST 250V 3.15A	1
2	F701	DE47-40024A	HOLDER-FUSE	FH-51H 7.5A	1
3	IC01	DE13-20008A	IC-VOLT REGU	KA7812A	1
4	IC01	DE62-30032A	HEAT-SINK	AL H25	1
5	IC01	DE60-10100A	SCREW-PH	M3*6 FeFzY	1
6	IC02	DE13-10016A	IC-VOLT REGU	KA7805A	1
7	CR71	2306-000294	C-FILM	CQS 450V 1.5	1
8	FT71		FILTER NOISE	LSA05230P	1
9	R903	2001-000776	R-CARBON	RD 1/2 T(S) 471-J	1
10	R203	2001-000588	R-CARBON	RD 1/4 TP 332-J	1
11	R202,301,409,501~509,513,601,604,606,901	2001-000065	R-CARBON	RD 1/4 TP 103-J	17
12	R405,407	2001-000036	R-CARBON	RD 1/4 TP 331-J	2
13	R201,204,401,402,404,603,605	2001-000042	R-CARBON	RD 1/4 TP 102-J	7
14	R607	2001-000855	R-CARBON	RD 1/4 TP 560-J	1
15	R602	2001-001088	R-CARBON	RD 1/2 T(S) 102-J	1
16	R403	2001-000890	R-CARBON	RD 1/4 TP 682-J	1
17	R910,912	A1000-0244	R-CARBON	RD 1/8 TP 332-J	2
18	R406,408	2004-001137	R-METAL FILM	RD 1/4 TP 682-F	2
19	D101~105	0402-000137	DIODE-RECT	1N4007	5
20	SS71	B4190-0016	THYRISTOR	G3MB-202PL	1
21	BZ61	DE30-20016A	BUZZER	CBE 2220BA STICK	1
22	TN71	DE26-20154A	TRANS L.V	230V DC17V 300mA	1
23	TN71	DE60-60012A	PIN EYELET	OD2.5 L3.0	5
24	C202,402	2202-000783	C-CERAMIC	CA OA 50V 103Z	2
25	C301,401	2202-000796	C-CERAMIC	CA OA 50V 102Z	2
26	C102,104,201,203,403,404,501,502,901	2202-000780	C-CERAMIC	CA OA 50V 104Z	9
27	C103	2401-000710	C-ELEC	CE04 25V 222-M	1
28	C105	2401-001397	C-ELEC	CE 04 25V 471-M	1
29	C101	2401-000180	C-ELEC	CE 04 35V 102-M	1
30	C601	2401-001573	C-ELEC	47UF/50V	1
31	IC04	DE09-10149A	IC-MCU	MB89635R-466	1
32	IC03	DE13-20009A	IC	KA7533Z	1
33	X501	2802-000103	RSONATOR-CERAMIC	10MHz	1
34	IC05,IC06,IC07	DE13-20024A	IC-DRIVE	KID65003AP(KA2657)	3
35	Q201,401,601,602	A4050-0168	TR-GENERAL	KSC945Y	4
36	Q603	0501-000292	TRANSISTOR	A708Y	1
37	Q902, Q901	0504-000144	TRANSISTOR	R2002	2
38	SW91	3404-001013	SWITCH-TACT	KPT-1115V	1
39	CN73	3711-000262	CONNECTOR WAFER	YW396-05AV WHT	1
40	CN43	3711-000879	CONNECTOR WAFER	SMW250-03 BLU	1
41	CN41	3711-000940	CONNECTOR WAFER	SMW250-04(WHT)	1
42	CN61	3711-000999	CONNECTOR WAFER	SMW250-05 WHT	1
43	CN92	3711-001154	CONNECTOR WAFER	SMW250-09 WHT	1
44	TB71	DE59-30001A	CONNECTOR-TERMINAL	250TAP,1PIN	1
45	RY71	3501-001058	RELAY	DI1U DC12V	1
46	J1~J29,HR02,HR04,LR01,LR03	DE39-60001A	WIRE SO COPER	PI0.6 SN T 52MM	33
47	C701		C-MYLAR	224K	1
48	C702		C-MYLAR	104K	1
49	R904~906		R-CARBON	RD 1/2T(S) 621-J	3
50	CN71		CONNECTOR WAFER	YW396-03AV BLK	1
51	RY72	3501-000399	RELAY	JQ1a-12V	1

8-2 ASS'Y DISPLAY & Module PCB

8-2-1 AM18A1E09/AM18A1B09/AM19A1E12/AM19A1E07

• DB93-10560B

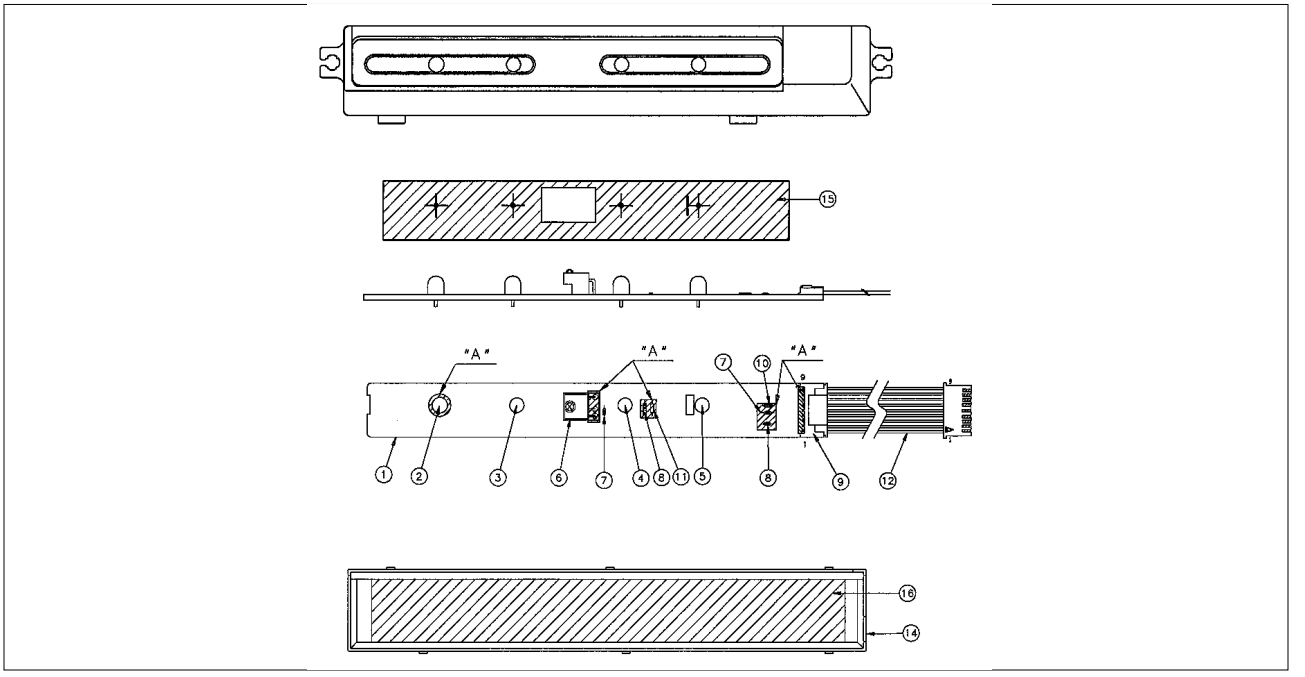


■ PART LIST

No	Description	CODE-NO	Specification	Q'TY
1	PCB-DISPLAY	DB41-10204B	FR-1 T1.6 W20 L170	1
2	LED - LAMP	0601-001333	LTL-30EHJ(ORG/GRN)	1
3	LED - LAMP	0601-001059	SY5511(YEL)	1
4	LED - LAMP	0601-001060	SM5511(GRN)	1
5	LED - LAMP	0601-001196	SO5511(ORG)	1
6	MODULE REMOCON	DB32-50027A	PNA4612MOOXD	1
7	C-CERAMIC	2202-000780	CA 0A 50V 104Z	2
8	R-CARBON	2001-000515	RD 1/8TP 221-J	2
9	CONNECTOR WAFER		YWL A200-09P	1
10	C-CERAMIC	2001-000283	CA 0A 50V 102Z	1
11	DIOD SWITCHING	0401-000005	1N4148	1
12	C/W DIS & MODULE	DB39-20346A	UL1007 AWG#26/9	1
13	CASE-CENTER PCB UP	DB61-10191A	PC, BLUE	1
14	CASE-CENTERPCB LOW	DB63-10494A	ABS, BLK	1
15	SEAL DISPLAY UPP	DB72-10233A	FOAM-PE, BLK	1
16	SEAL CASE DISPLAY	DB72-10220F	30FOAM-PE	1

8-2-2 AM18B1E09/AM18B1B09/AM19B1E12/AM19B1E07

• DB93-10561B

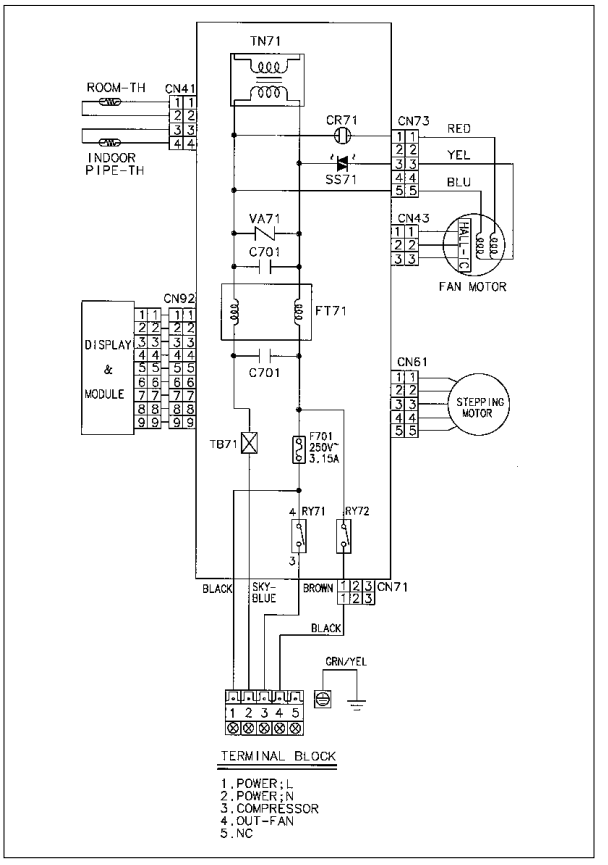


■ PART LIST

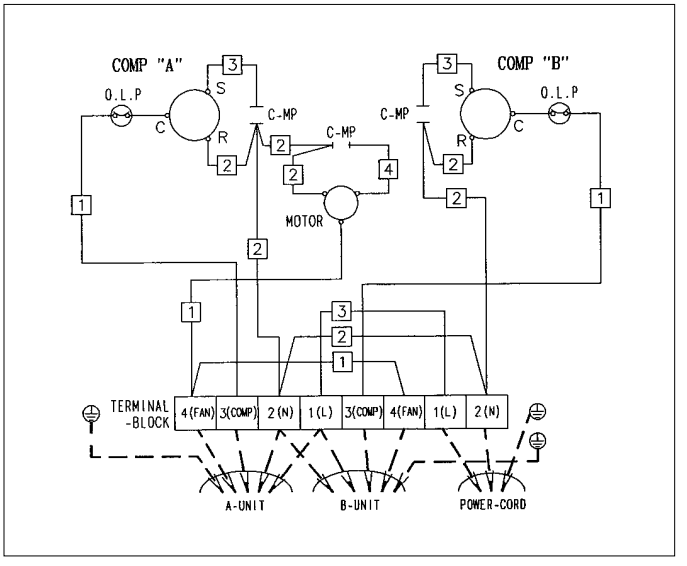
No	Description	CODE-NO	Specification	Q'TY
1	PCB-DISPLAY	DB41-10205B	FR-1 T1.6 W20 L170	1
2	LED - LAMP	0601-001333	LTL-30EHJ(ORG/GRN)	1
3	LED - LAMP	0601-001059	SY5511(YEL)	1
4	LED - LAMP	0601-001060	SM5511(GRN)	1
5	LED - LAMP	0601-001196	SO5511(ORG)	1
6	MODULE REMOCON	DB32-50027A	PNA4612MOOXD	1
7	C-CERAMIC	2202-000780	CA 0A 50V 104Z	2
8	R-CARBON	2001-000515	RD 1/8TP 221-J	2
9	CONNECTOR WAFER		YWL A200-09P	1
10	C-CERAMIC	2201-000283	CA 0A 50V 102Z	1
11	DIOD SWITCHING	0401-000005	1N4148	1
12	C/W DIS & MODULE	DB39-20346A	UL1007 AWG#26/9	1
13	CASE-CENTER PCB UP	DB61-10197A	PC, BLUE	1
14	CASE-CENTER PCB LOW	DB63-10494A	ABS, BLK	1
15	SEAL DISPLAY UPP	DB72-10245A	FOAM-PE, BLK	1
16	SEAL CASE DISPLAY	DB72-10220F	30FOAM-PE	1

9. Wiring Diagrams

9-1 Indoor Unit



9-2 Outdoor Unit



	ENGLISH	ESPANOL	FRANCAIS	ITALIANO
1	BLK	NEGRO	NOIR	NERO
2	RED	ROJO	ROUGE	ROSSO
3	WHT	BLANCO	BLANC	BIANCO
4	YEL	AMARILLO	JAUNE	GIALLO

UM18A1(B1)E2

CAPACITOR	FAN MOTOR : 2.5μF/450VAC
	COMP MOTOR : 30μF/420VAC

UM18A1(B1)B2

CAPACITOR	FAN MOTOR : 2.5μF/450VAC
	COMP MOTOR : 20μF/450VAC

UM19A1(B1)E2

CAPACITOR	FAN MOTOR : 2.5μF/450VAC
	COMP MOTOR : 30μF/420VAC, 25μF/370VAC

UPDA TE LOG SHEET

Application date	Page	Part#	Note(Cause & Solution)	S/Bulletin#

Use this page to keep any special servicing information. (Service Bulletin, etc.)
If only parts number changes, Just change parts number directly on parts list.
And if you need more information, please see the service bulletin

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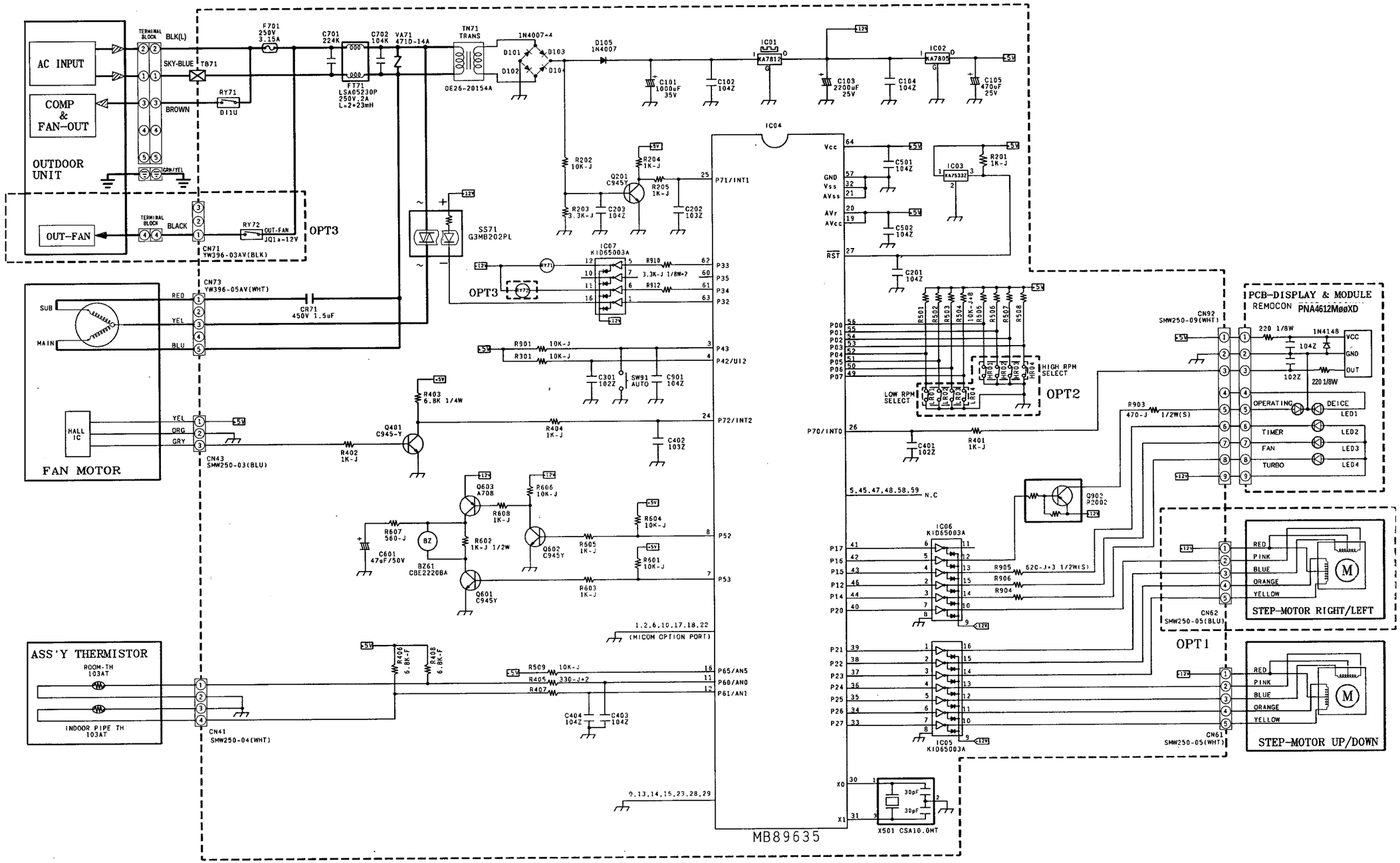
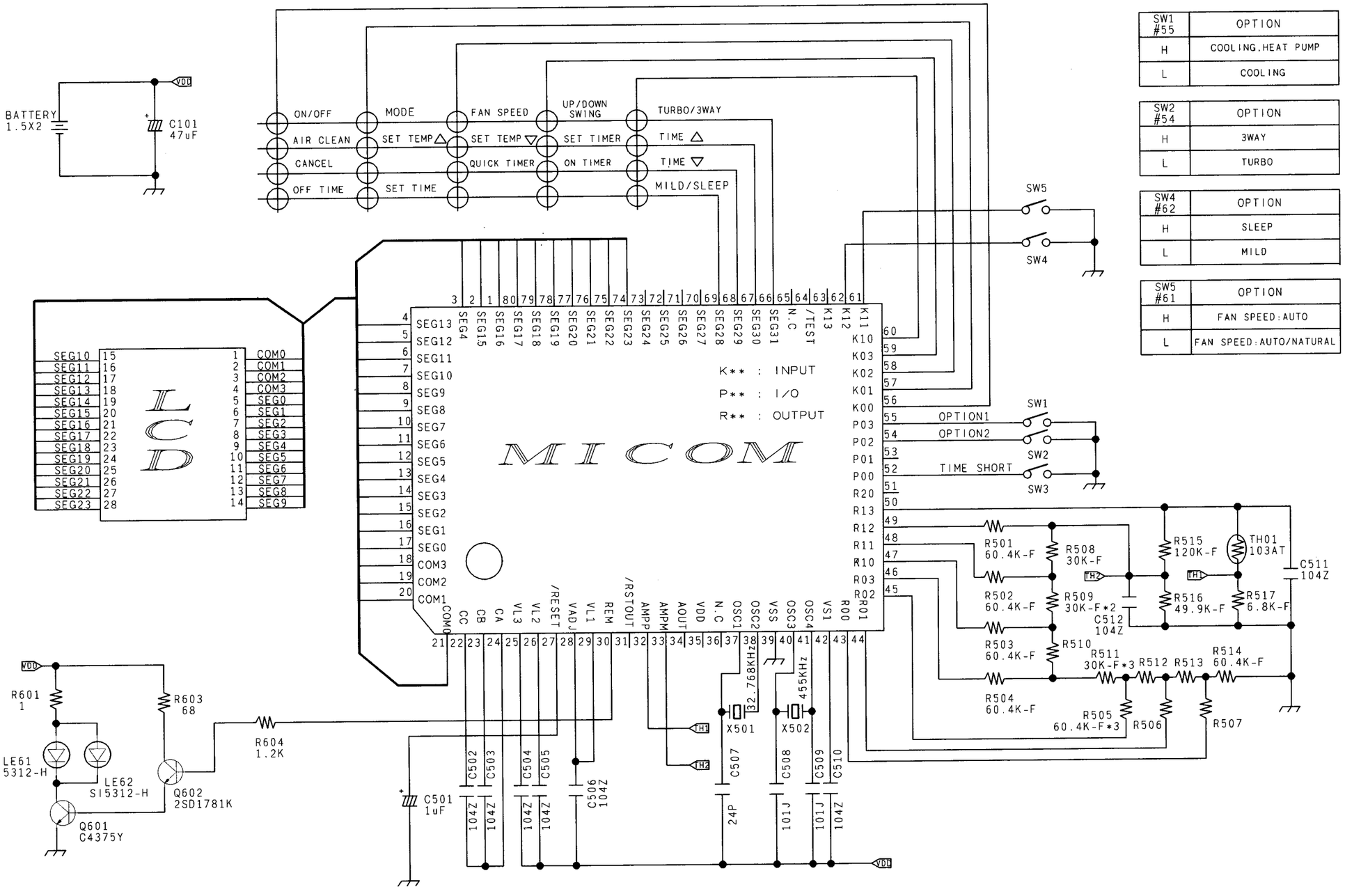
10. Schematic Diagrams

10-1 Indoor Unit





SW1 #55	OPTION
H	COOLING,HEAT PUMP
L	COOLING

SW2 #54	OPTION
H	3WAY
L	TURBO

SW4 #62	OPTION
H	SLEEP
L	MILD

SW5 #61	OPTION
H	FAN SPEED:AUTO
L	FAN SPEED:AUTO/NATURAL